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The Armed Services Procurement Act of 1947 Should Be Reformed

721335

By Robert B. Hall

GAO has consistently taken the position that the preferred method of Government procurement should be on the basis of formal advertising because it is considered to be the method best designed to obtain the most advantageous contract for the Government and to give all interested parties an opportunity to compete for the Government's business on an equal basis. The Armed Services Procurement Act of 1947 reflects this preference. In the following article, the author takes issue with this concept as applied to much of defense and space procurement and develops his personal view as to the desirability of changes in the law.

The opinions expressed in this article are those of the author and do not represent official GAO positions.

Formally advertised procurement pervades the whole structure of the Armed Services Procurement Act of 1947.¹ It is, in fact, mandatory and the only procurement method formally recognized in the act. The reigning inference is that formally advertised procurement is universally applicable and the "one best way."

This procurement method, most everyone will agree, is very efficient in its proper arena: the buying of low-technology, standard items. It has enhanced full and free competition and has saved money for the taxpayers. But

for acquiring complex products, including major weapon and space systems, it has little or no relevance. As indicated in the Secretary of Defense Posture Statement for fiscal year 1970:

* * * The complexity of most military products is such that formal advertisement procedures simply cannot be made to work in the vast majority of cases * * *. It is the substance, rather than the form, of competition which should be of principal concern to the Congress and the public * * *.

Procurement methods (acquisition *strategies*) for advanced technology devices have departed markedly—of

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¹ Now 10 U.S.C. 2301-2314.

necessity—from the formal advertising method. The statute does not recognize these more relevant methods. Rather, it discriminates against them by loading on unnecessarily burdensome (and ineffectual) requirements.

Even in the minority of procurement spending where formal advertising is used, a substantial amount involves two-step procurement actions which embody competitive negotiation in the first step.

Patently, formally advertised procurement is out of touch with the real world. Regulation and practice are disjointed. Since practice must respond to fundamental changes in the environment, clearly it is the act that should be reformed. A viable statute recognizes and deals with prevailing conditions.

The purpose of this article is to propose certain major reforms to the act. In thrust they are not new; procurement literature of the past 10 to 15 years has emphasized the need for this kind of modernization.

The article first points out the widespread impact of this important act on nearly all Government procurement and much of industry. Next, the history of the act is described to help explain how its relevancy has withered away. The suggested reforms, summarized immediately below, are then discussed in detail. In the conclusion, methods of bringing about and implementing the reforms are laid out.

This article does not contend that the Armed Services Procurement Act is at the root of all procurement problems. Rather, that an act which reflects the best policy for today's needs might also improve understanding and encourage

progress in other areas—a sort of chain reaction may set in.

In brief, the proposed reforms to the act are:

1. Eliminate the fiction of formal advertising as the dominant procurement method, and the need for reciting the "17 exceptions" (it seems ludicrous to contract for 85 percent or more of DOD's needs on an "exception" basis).
2. Recognize acceptable procurement methods in actual use and prescribe the criteria for their application.
3. Include a statement of current congressional policy on "competition" based on a broader definition of the term, emphasizing the substance of competition rather than its precise form.
4. Clarify the "competitive range" and the parameters within which discussions should and should not be conducted—especially when factors other than price are crucial.
5. Illustrate the "other factors" and when they become more dominant than price.
6. Improve communication with the Congress concerning procurement actions and the degree and scale of competition.
7. Raise the formal advertising exemption from \$2,500 (1958) to \$5,000, or higher, and provide minimal policy guidance over some 7 million small procurements per year.
8. Delete the stereotyped and pointless paperwork connected with preparation of "Determinations

and Findings” now required when using certain exceptions to formal advertising and contract types.

The Act's Impact

The Armed Services Procurement Act directly applies to three agencies: the Department of Defense, the National Aeronautics and Space Administration, and the Coast Guard. The procurement regulations in these three agencies are quite voluminous and implement the act and other statutes. In the DOD, the implementing document is called the Armed Services Procurement Regulation (ASPR). NASA has the NASA procurement regulations (NASA PRs). In all other executive agencies, the Federal Procurement Regulations (FPR) govern the procurement practices. The FPRs and NASA PRs are influenced by and for the most part patterned after the Armed Services Procurement Regulation. This is understandable since the title III procurement procedure of the Federal Property and Administrative Services Act² is patterned directly after (our friend) the Armed Services Procurement Act.

This means that the Armed Services Procurement Act directly or indirectly governs almost all Federal procurement, which exceeds \$50 billion annually, and influences the actions of some 100,000 people in the Government who participate in the award and administration of contracts. In addition, the act and its implementing regulations have a direct impact on thousands of private companies in virtually every major industry in the United States.

² 41 U.S.C. 251 et seq.

Brief History of the Act³

Perhaps the history of the Armed Services Procurement Act can best be summed up as a compromise reached in 1947 between two extremes. The one extreme was the historical preference for formal advertising which existed in this country up until the time of World War II. The other extreme was the almost universal use of negotiation during World War II. This latter extreme extended to a prohibition during the war against the use of formal advertising unless the agency was especially authorized by the War Production Board.⁴ The act simply combined these two extremes and permitted the Defense Department sufficient leeway to go in either direction. The act said nothing about obtaining competition through means other than formal advertising. Negotiation was and still is defined in the act as “make without formal advertising.”

Historical Preference for Formal Advertising

The historical preference for formal advertising dates back to the early 1800's. A literal interpretation of the first Federal statute, in 1809, indicated that contracting officers had a choice between two equally available methods of procurement, “open purchases” or “advertising for proposals.” This meant that items could be purchased in the open market in the manner of ordinary commercial transactions and negotia-

³ History based largely on series of white papers submitted in hearings by DOD officials during part I of a procurement study in 1960 by the Senate Armed Services Committee (A Study of Military Procurement Policies and Practices as Required by Section 4(a) of Public Law 86-89, Amending the Renegotiation Act of 1951).

⁴ Part I (p. 52) of hearings mentioned in footnote 3.

tions used (negotiation is designed to give scope to normal purchasing practices and permits innovations in procedures).

However, in 1829 the Attorney General interpreted the original statute as requiring advertising except where public exigencies necessitated immediate contract performance. Thus, groundwork was laid for using formally advertised bidding as a foundation for the competitive bidding system in the Federal Government. In 1842, a statute was passed requiring advertised bidding for stationery supplies and printing. In 1860, a landmark statute was passed requiring advertising for supplies and services by all departments of the Government. It was incorporated in 1874 in section 3709 of the Revised Statutes, and with certain exceptions continued to regulate military procurement up until World War II.

The 17 Exceptions

The first legislative exceptions to formal advertising were for "public exigency" (fires and floods) and "personal services." Through the 1800's and up until World War II, eight additional exceptions were added in order to exempt procurements such as medical supplies (1845), purchases outside the United States (1845), perishable goods (1847), purchases for national emergencies (1864), small purchases (1892), and a catchall type exception (number 10) to be used where it was deemed impractical to secure competition through formal advertising (1901) (present DOD regulations contain 17 illustrative conditions under which exception 10 may be used).

Throughout most of this period, U.S. weaponry was relatively simple and it was obtained primarily through in-house development and production—the so-called arsenal system. Also, up to this point the basic consideration in the minds of the Congress in emphasizing the formal advertising procedure had been the prevention of favoritism.

During World War II the greater part of the national defense needs were obtained from private industry through negotiation. Several lessons were learned from this wartime experience.

The first lesson was that negotiated procurement, with flexibility for bargaining contract types and terms, far from leading to higher prices or the concentration of procurement in the hands of larger and more favored producers, more often led, on the contrary, to a wider distribution of suppliers and to lower costs.

A second lesson was that the military services had demonstrated an ability to use with judgment and common sense the broad procurement powers granted.

The third lesson was that to compel a return to the inflexible procedures of formal advertising would mean that supplying the needs of the military would soon revert to a relatively small group of professional Government suppliers, with the consequent loss of know-how and industrial capacity, and of a broad mobilization base. Perhaps the outstanding lesson of the war was that industrial power is a critical factor of no less value than trained manpower and that true national defense is impossible except on the foundation of a powerful, broadly based industrial structure.⁵

World War II experience showed also that additional exceptions to the formal advertising rule were needed, and exceptions 11 through 16 were added. The

⁵ "Our Legal System of Defense Procurement," by F. Trowbridge vom Baur, formerly General Counsel of the Navy Department, a paper included in 1959 Senate Armed Services hearings on Senate bill 500 (p 506).

new exceptions related to such things as research and development work, secret purchases, and technical equipment requiring standardization. The 17th exception simply permitted the use of negotiation where otherwise provided by law, as in the case of a 1926 Aircraft Production Act.

The 17 exceptions are so all-encompassing as to permit the use of negotiating authority under almost any conceivable circumstances. In fact, the 15th, not mentioned above, permits negotiation when advertising is unsuccessful. In order to use negotiating authority under many of the exceptions, the agency must prepare written determinations and findings. In the case of some of the exceptions, such determinations have to be made by the agency head.

Passage of the 1947 act combined the first 10 exceptions legislated over the previous 100 years with those exceptions developed from World War II experience. The 1947 act also unified procurement authority throughout the Department of Defense, provided small business opportunity to secure military contracts, gave finality to decisions of a department head, authorized joint procurement between the departments, and repealed archaic and unnecessary procurement statutes.⁶

Public Law 87-653 Amendments

Several minor amendments and one major one have been made to the act since 1947. The major one involved Public Law 87-653, enacted in 1962. This law, which restated the longstanding preference for formal advertising,

required agency written determinations to clearly illustrate that this method could not be used when negotiating through many of the 17 exceptions. It also required the agency, when negotiating, to solicit proposals from the maximum number of qualified companies consistent with the nature and requirements of the procurement and to hold discussions with those concerns whose proposals were in a competitive range.

Additionally, where competition is lacking, Public Law 87-653 requires the agency to obtain certified cost or pricing data from the contractor and to provide rights in the contract for reducing the price if defective data was submitted and relied upon in negotiations.

Experience Under the Act

Twenty years of experience under the act in DOD reveals that formally advertised procurement has ranged from a low of about 10 to a high of about 17 percent. However, a significant portion of this amount represents a two-step procurement procedure under which competitive negotiation is used in the first step to obtain acceptable technical proposals and advertised bidding is used in the second step.

The use of negotiation on the other hand, both in DOD and NASA, has become the customary way of doing business with private industry. Within the broad framework of "negotiated procurement" varying amounts of technical and price competition have been obtained over the years, and more often a combination of both. This has been averaging in DOD, according to published statistics, about one-third

⁶ Navy Contract Law, Second Edition, Chapter 3, Procurement by Negotiation, prepared by General Counsel of the Navy Department.

of all procurement. The balance, about one-half, represents single-source procurement.

In NASA, advertising accounts for about 2 percent, competitive negotiations about 65 percent, and single-source procurement about 33 percent.

Act Should Recognize Accepted Methods of Procurement and a Broader Framework for Competition

As presently written, the act gives primary recognition to only one method of procurement—formal advertising. The general tenor of the act is that the agency shall use the formally advertised method of procurement and that any other method of procurement is to be performed through an “exception” process. This fetish for the use of formal advertising and the resulting pressures it brings to bear can cause this method to be used in inappropriate situations. Such inappropriate use sometimes complicates the procurement, leads to protests, and in fact may endanger success of procurement actions and increase ultimate cost to the taxpayer. Furthermore, it promotes the distorted notion that anything less than a formally advertised procurement is *bad per se*.

Limitations of Formal Advertising Preclude Its Use As a Primary Tool for Competitive Procurement

The major disadvantage of formal advertising as a primary tool for competitive procurement is its limited application to defense and space activities. It cannot be used for classified material—or where there are no fixed specifications—or to enlist specific

sources whose existing know-how or facilities are crucial to the success of the procurement—or to obtain new knowledge or techniques in order to avoid early obsolescence—or to permit early start of procurement and great speed of delivery.⁷

Foundation for use has gradually disappeared. Probably the most significant factor in modern times to limiting the use of formal advertising is the fact that the very foundation for its use has gradually disappeared as it has become increasingly difficult to precisely define what is being procured. An absolute requirement for formal advertising is that the Government must be able to accurately specify its exact needs in detail so that all offerors will have a complete understanding of what is required and can compete on an equal basis. In order to be considered “responsive,” each offeror’s proposal must conform to these specifications in every respect. Any time that aspects of these detailed specifications are incomplete or defective, the Government is exposed to a claim from the contractor to whom the advertised contract was awarded.

The kind of technical data and manpower skills needed for great specificity in procurement did generally exist within the Government during the 1800’s and early 1900’s when the weapons for the national defense were less sophisticated in nature and were largely produced in-house, with the assistance of Government laboratories. During the past 40 years, however, weapons have

⁷ Paper included in 1959 Senate Armed Services hearings on S. 500 entitled “Background Leading to Present Law and Practice” by Helge Holst, then treasurer, Arthur D. Little, Inc.

reached a high degree of sophistication, with speed of delivery a critical factor, and there has been a trend toward almost complete reliance on industry for their development and production.

As a result, the military services are no longer able to assume responsibility for complete engineering of their equipment. This point was one among many raised by a recognized authority in connection with an evaluation of formal advertising during a congressional hearing. He observed that too many new kinds of items and vast new technologies and the need for standby manufacturing competence had brought about a military-industry partnership with the military providing funding and overall direction. Today, in order to prepare the adequate, complete, and realistic specifications necessary for formal advertising, the Government would have to duplicate industry's engineering competence. He indicated this would be highly impractical in view of the gigantic cost of such duplication, the lack of available manpower skills, and the resultant retardation of the defense effort.⁸

Technical barriers. Even where engineering competence still exists in certain areas with varying capabilities to specify Government's needs for purposes of formal advertising, other obstacles exist in the present day procurement environment.

1. The design of the item must remain stable during an extended period of time which overlaps a similar period when the Government's need for the item is sufficient to attract other com-

⁸ "How Procurement is Accomplished Today" by B. Edelman, Western Electric Co., Inc., presented during 1959 Senate Armed Services hearings on S. 500.

panies into the field—a not too frequent occurrence in today's defense and space procurement environment.

2. The difficulty and expense, estimated at several hundred million dollars annually, of obtaining and maintaining up-to-date, unrestricted, and complete technical data and drawings.
3. The difficulty in having the Government act as an intermediary in transferring technical know-how, drawings, and data to a company that has never produced the item.⁹
4. The problem of inducing contractors to submit fixed-price bids in formal advertising on untested sets of drawings and specifications when there "is little or no comprehension of the pitfalls which may be hidden in the drawings and specifications."¹⁰

⁹ This issue raised in a special paper prepared by G. R. Hall and R. E. Johnson of Rand Corp. entitled "Competition in the Procurement of Military Hard Goods." The paper was presented June 17, 1968, in hearings conducted by the Senate Subcommittee on Antitrust and Monopoly on "Competition in Defense Procurement." The paper pointed out that a great deal more information is needed by a new supplier than just drawings: e.g., "operation sheets and machine instructions sheets; machine-loading control data; treatment data; tools, jigs, and fixture data; product, process or assembly data; and plant layout, machine tools, and work station data. * * * To sum up, it appears that engineering drawings and specifications and underlying data rights often fail to provide access to technology sufficient to support competitive manufacturing."

¹⁰ From statement presented by Prof. Ralph C. Nash, Jr., associate dean, National Law Center, The George Washington University, on Sept. 10, 1968, before the same subcommittee mentioned in footnote 9. He also said:

Many experts in Government procurement will privately state that advertised procurement is not an effective way to obtain competition in these situations. However, there is a great fear of forthrightly stating this proposition before Congress because of the continual congressional statements which seem to indicate that advertised procurement is sacrosanct. It is time to recognize that Congress desires competition in the procurement process but that such competition should be obtained in the most effective way, depending on the product being procured. This subcommittee would make a substantial contribution to the procurement process if it sponsored legislation which clearly stated this proposition. Open and public competition may be fine for buying pencils and paper, but it is an archaic technique for buying technical products.

5. The questionable value of such data in view of the different manufacturing processes in industry.

Competition limited to price. Another serious problem with formal advertising is that competition is limited to price alone and procurement officials must accept the lowest (apparent) bid price—since the burden of not doing so is fraught with difficulty. There are many cases where the low bidder's capabilities are suspect on account of inadequate financing, technical ability, quality and incompetent management. However, it is difficult for a procurement official to disqualify this company because of the lack of conclusive evidence or records.¹¹

In much of defense and space procurement, factors other than price play a major and sometimes a more dominant role in making competitive awards. These factors include: the past experience, ability, and reputation of the company; the quality and reliability required to be built into the product; the later cost of operating and maintaining it; and the life of the product itself. Injecting such considerations into the rigid advertised procurement process is difficult if not impossible.

Awards may be based on few or only one bid. Advertised procurement may also result in only a few bid responses with award made on something less than a truly competitive basis. In this connection a Rand Corp. study prepared in 1966 of formally advertised procurement showed that, of some 2,300 procurements, 45 percent resulted

in three bids or less, 32 percent resulted in two bids or less, and 8 percent resulted in only one bid. Rand concluded that the indiscriminate use of this method of procurement can lead to acceptance of prices higher than those desirable or obtainable.

Rigidity limits exercise of judgment. The rigid procedures built into formal advertising many years ago to avoid favoritism in the letting of contracts have also done much to limit its application in the present day procurement environment. Formal advertising is so mechanized that the buyer can exercise little judgment or responsibility or otherwise influence the contract award; whereas, major contract awards today in DOD and NASA require maximum exercise of judgment and responsibility by "professionals."

Industry, with its even greater amount of procurement than that of the Government, would naturally have the same fear of favoritism in the letting of the contract. However, "the solution for business was not to retain an outmoded and impractical technique such as advertised bidding—but to improve the negotiation process by establishing a force of higher caliber personnel who were required to use judgment and accept responsibility * * *."¹¹

Limits development of individual's competence. Finally, it must be observed that formal advertising is a creation of the Government and that, during its 150 years' history, this method has not been adopted on any widespread basis by private industry. It was explained to a congressional committee as follows, "* * * industry seems to have learned from management re-

¹¹ Paper presented at 1959 Senate Armed Services hearings on S. 500 entitled "How Procurement is Accomplished Today" by B. Edelman, Western Electric Co., Inc.

search and study that the fuller utilization of the individual's competence is important * * * ." and "Industry strives to attain this by job analysis, personnel training and development, increased responsibility, improved organization, and management control techniques. The very spirit of the advertising system, with its rigidity, is in opposition to this concept * * * ." ¹²

Other Methods of Procurement Play a More Vital Role in Defense and Space Activities

It seems reasonable that the Armed Services Procurement Act should clearly recognize other commonly accepted methods of procurement (e.g., competitive negotiation and single-source negotiation) and prescribe general criteria for their use.¹³ Competitive negotiation could be further defined in the law to distinguish between those procurements that primarily involve price competition and those that involve an overall technical and business/management competition as well, including such factors as design approach, scientific skill of personnel to be assigned to the project, facilities, cost control, past performance, and management capabilities.

¹² See footnote 11 on p. 10.

¹³ Statement of Robert B. Chapman III, executive vice president, Aircraft Armaments, Inc., during 1959 Senate Armed Services hearings on S. 500, included the following: "It is recommended that revised legislation clearly establish the conditions under which each method of procurement is preferable, rather than state a preference for one method over the others * * *."

"The mere recognition that there are more than two methods of procurement is not enough. To be fully recognized and accepted, legislation would be required which would establish and identify these methods—along with general criteria for their use." Views of Col. William W. Thybony, former Chairman, ASPR Committee, The Government Contractor's Communique, dated Nov. 11, 1968.

These other forms of competition have been used more extensively than formal advertising and they play a more vital role in satisfying needs of the Defense Department and NASA. For example, the act exempts the procurement of research and development from the requirement for formal advertising, yet the competition obtained in some of these procurements, particularly where source selection is being made for new weapons, is more intense than many competitions under formal advertising. The winner of these competitions may ultimately become a single-source supplier for follow-on procurement under a program lasting as long as 10 years. Under the present act, however, these large and violent competitions are considered exceptions to the formal advertising rule.

The one basic fundamental difference between formal advertising and negotiation is that, in negotiation, the procurement official may question and explore the soundness of the proposal; whereas, in formal advertisement, the lowest bid must be accepted without discussions. Negotiation does not, as some think, necessarily imply a reduction in competition or the number of companies invited to bid. Rather:

- It enables exploration of the proposers' cost data in order to eliminate unnecessary costs based on misunderstood requirements.
- It elicits technical contributions to achieve a desired end result or even a sounder kind of counterproposal.
- It permits the controlling factor(s) to influence the award (i.e., technical competence, support of mobilization plans, employing existing facilities, economies of standardization).

- It enables development of a more competent, more stable corps of professional procurement personnel “* * * through utilization of more individual initiative and ability and by encouraging careers for able personnel through maximizing their opportunities for contributions.”¹⁴

One Approach To Spelling Out Criteria for Selecting Preferred Procurement Method

It is fair to say that there is no single method of procurement in DOD and NASA, but rather several methods, each being not only acceptable, but preferred in certain circumstances. Thus, a way must be found to bridge the gap between this reality and the Armed Services Procurement Act which statutorily provides for one method—the least applicable one—while others are buried in the “exception” process.

The following illustration explores but one approach to the problem. (Other approaches would have to be considered as well, and perhaps a final solution would lie in some combination of the best parts of several.)

In the case of formally advertised procurement, there are already fairly well established criteria in procurement procedures and regulations. We know, for example, that we are generally talking about low-technology, standard items or services and that:

- There must be well defined and fairly detailed specifications or purchase descriptions not restricted by security or proprietary design which permit all bidders to compete on an equal basis. (This means that the item not only must have been fully developed, but also previously manufactured

in at least a comparable configuration.)

- There must be a known production base that will provide a number of suppliers willing and able to compete for the item. (This means that a civilian product or conventional military item is involved.)
- There must be sufficient cost experience to permit entering into a firm fixed-price contract and the selection of the successful bidder on the basis of *price alone*.
- There must be sufficient time to perform the administrative procedures required for formal advertising.
- There must be sufficient amount of purchase to warrant use of formal advertising (exception in law is now stated at \$2,500).
- Professional and personal services must not be involved.
- The item must not be for authorized resale (since customer preferences have to be considered here).
- The item must not be of a subsistence nature (since perishable and seasonal factors generally preclude advertising).

If criteria along the lines of the above were adopted, it could be preceded by a statement generally as follows: “All purchases of any contracts for property and services within the U.S. shall be made by formal advertising when they meet the following criteria.” After including such criteria, the law could then state that: “Whenever the agency finds that one or more of the above-mentioned criteria are not present, and they cannot be satisfied by use of the

¹⁴ See footnote 11 on p. 10.

two-step formal advertising procedure,¹⁵ purchases of property and services will be made through the competitive negotiation method of procurement (as defined elsewhere in the act)."

The competitive negotiation method would thereafter prevail and generally would involve procurement of high-technology, nonstandard items or services except where it was determined by the agency to be in the best interest of the Government to purchase the property or service from a single or sole source. Some suggested criteria for the latter would be:

- A public exigency (requiring immediate contract performance) precludes soliciting other sources.
- A sole source of supply or service.
- A company has already established itself in a preeminent position and it is impracticable for reasons of time, money, and mission objectives to compete the item with other potential sources.
- A follow-on procurement—unless additional capacity is needed or it is technically feasible and economically desirable to establish other sources.

Most single-source procurement would normally fall under the last-mentioned criterion, and regulations could illustrate its application. There are many reasons, as discussed in the next section, why timely and effective procurement dictates returning to an established source or to the developer of the item who would normally have been selected on a competitive basis.

¹⁵ See discussion on this procedure in early part of article under "Experience Under the Act."

Another Approach Suggested by Senate Bill 500

Another approach to revision of the 1947 act can be found in one feature of a bill (S. 500) on which the Senate Armed Services Committee held extensive hearings in 1959. This bill, known as the "Saltonstall bill," provided that competitive negotiation be given equal status with formal advertising (rather than authorized through the 17 exceptions). It also provided for a third method, "negotiation," which was to continue to be authorized through the 17 exceptions. Other features of the bill were somewhat controversial at the time, and, although the bill was considered by many to be courageous and constructive in nature, it was not acted upon.¹⁶

One fear expressed at the hearings on S. 500 was that competitive negotiation, if given equal status under law, might replace advertised bidding in situations where this method was still appropriate. Another fear was that the minimum requirement of two proposals stated in the bill, for competitive negotiation, might become the standard and qualified companies excluded from participation in Government procurement.¹⁷

¹⁶ See "Report on Procurement of the Committee on Armed Services, U.S. Senate, 86th Cong., 2d sess., S. Rept. 1900, additional views of Senator Saltonstall (p. 30).

¹⁷ For further information on this bill see "Hearings Before a Subcommittee of the Committee on Armed Services, U.S. Senate, 86th Cong., 1st sess., on S. 500 Amending Title 10, United States Code, with respect to procurement procedures of the Armed Services." These are the richest hearings the writer was privileged to read. Yet the Senate report (identified in footnote 16), which purportedly covered hearings in both sessions, ignored these hearings completely.

Some Advantages of Establishing Acceptable Methods of Procurement, and Criteria for Their Use

The use of some criteria to guide procurement personnel in selecting the most effective procurement method seems to have several advantages over the present procedure of operating principally by exceptions to one legally accepted method. One of the more important advantages would be to develop a competitive bidding system within the Federal Government not founded solely on rigid and outdated formal advertising procedures.

Another advantage, however, would be to strengthen the use of the advertised method of procurement by clearly setting out in a positive way the conditions when its use is in the best interest of the Government. In other words, it would help to ensure use of formal advertising in circumstances best suited for it.

Perhaps an even more important benefit would be to formally recognize the competitive negotiation method of procurement and encourage its use where formal advertising is neither practical nor feasible.

Today, almost full reliance is being placed on private industry for the development of complex military items in an environment of rapidly changing technology. A national policy reflected in law that these procurements would be awarded in fully competitive atmospheres (even though formal advertising could not be used) would ensure that industry has a clear incentive to seek out better technical and economical solutions to military requirements.

Also, in redefining accepted methods

of procurement in the act, a stigma could be removed from the use of single-source negotiation. This method may not only be the preferred one but, in fact, the only practical alternative to meeting the Government's needs under certain conditions. For example, once a company has won a major weapon system design competition, the major investment in time and money to finally get into production would ordinarily make it unbusinesslike to establish another company as a supplier unless mass production is required.

Other reasons for follow-on procurement with an already established source include (1) the need for special, otherwise unobtainable, services from the developer of the item, (2) the avoidance of unacceptable delays in the procurement, (3) the assurance of quality, maintainability, and reliability of the product and safety of the people using it, (4) the need for absolute interchangeability of parts, and (5) the economies of standardization.

A further situation would be when one company has developed and produced an item at its own expense and the item best satisfies the Government's particular need. This recognizes another form of competition—the so-called indirect competition that takes place within industry. In this competition a particular company, rather than waiting for or relying on a Government development contract, takes the initiative to become preeminent in its field and develops a technical approach to fulfilling an agency's need. To compete this procurement with other companies would mean duplication of development and sub-

stantial delay of procurement and production—and inhibition of entrepreneurial efforts.

Elimination From the Act of the 17 Exceptions to Formal Advertising

By developing sound criteria for the use of the basic methods of procurement and various forms of competition there is serious question as to the need for and the benefits to be derived from administration of the present 17 exceptions in law. They were developed over the past 150 years as exceptions to the general rule that formal advertising was generally applicable to procurement situations. As indicated, conditions have changed and this rule is no longer applicable.

It is well known that the exceptions have forced the agencies into the use of stereotyped findings and determinations or the costly and time-consuming preparation of findings and determinations which serve no practical purpose and prolong the procurement process. It is also clear that the exceptions have been abused over the years and that the exceptions do not truly reveal the nature of the procurement situation or the extent of competition obtained.

For example, restricted advertising for unilateral small business set-asides, balance of payment situations, R. & D. procurements from \$2,500 up to \$100,000, and labor surplus area awards have, at one time or another, been classified under exception 1, "national emergency, declared by the Congress or the President." The purpose of putting the many R. & D. awards under this exception, even though there is a separate exception for research and development work, has been to elimi-

nate the needless paperwork otherwise required up through top secretarial levels to justify not using formal advertising.¹⁸

In addition, small business awards, even though the advertising is restricted to small companies, are frequently highly competitive. They could be recognized as such, rather than recorded as negotiation exceptions.

The exceptions in general, and particularly number 10 (advertised competition impracticable), cover such a wide range that the average procurement man is simply faced with the problem of choosing the right exception, and perhaps the easiest one from an administrative viewpoint, and then going through the usual stereotyped justification requirements. By creating so many of these exceptions in law, the Congress may have accomplished the one thing it sought not to do—develop an environment for noncompetitive procurement. A reappraisal of the need for the 17 exceptions seems overdue.

Reporting to the Congress Under the Act Should Be Revised

The agency sends reports to the Congress on the use of exceptions and the nature of the procurement actions entered into. The requirements for these reports stem from the act or separate agreement with congressional committees. Such reporting requirements need to be revised—irrespective of other revisions made to the Armed Services Procurement Act.

¹⁸ This was done with knowledge of the Armed Services committees. The situation has been somewhat alleviated by amendment to the act permitting below-secretarial delegations of determinations and findings for R. & D. procurements under \$100,000.

Reporting requirements, especially to the Congress, build up pressure and result in establishment of goals that procurement people must meet down through the chain of command. In other words, poor reporting requirements can lead to poor procurements. At the present time, goals are used throughout the Department of Defense for formal advertising, although this method of procurement may not be the best indicator of progress for the particular items being purchased at some procurement centers. As other forms of competition and methods of procurement may be more applicable to the circumstances, poor procurement and increased cost may result.

Another reason for revising the reporting requirements is that there is widespread misunderstanding between the Congress and the agencies as to what is meant by the statistics being reported on competition. Often the agency may mean that a competitive price was established under a so-called threat of competition when only one bid was received—or that other forms of competition were present. The Congress, on the other hand, tends to construe these statistics as meaning that at least two companies and probably many more were actively contending for the contract—strictly on a price basis.

Act Imposes Unnecessary Requirements on Types of Contracts

Present law requires the agency to make special determinations for the use of cost-plus-a-fixed-fee and incentive types of contracts, showing that these contract types are likely to be less

costly or that it is impractical to procure except under such a contract type. The requirement under the act for special determinations for use of types of contracts has, as in the case of the 17 exceptions, simply created costly and time-consuming paperwork and stereotyped comments, without serving any really useful purpose. Since these contract types cannot be used in formal advertising, the requirement to justify their use further illustrates how this method of procurement pervades the statute.

In the late 1950's the pendulum swung too far in favor of the use of cost-type contracts. More recently, the pendulum has swung the other way to fixed-price contracts, perhaps too far. These actions were influenced administratively rather than by statute.

There have been attacks from some quarters on the use of incentive-type contracts since they were first put into widespread use in the 1950's. Perhaps some of these attacks stemmed from a fear that incentive contracts were thought of as some kind of panacea. Incentive contracts have had problems—inflated target costs and some poor structuring and misapplication of performance and delivery incentives. These problems may be reduced with additional experience, guidance, and training.¹⁹

Certainly, no one can rationally question the objective of the incentive contract to achieve better contract performance, particularly in areas crucial to success of the procurement program. It has the further advantage over cost-

¹⁹ DOD and NASA are currently improving their incentive contracting guides.

type contracts of forcing the contracting parties to clearly define their objectives at the outset. A limitation placed in the Armed Services Procurement Act of 1947, in a different procurement environment and before widespread use was ever made of incentive contracts, does not seem pertinent today.

For many years regulations have prescribed considerable criteria for the use of types of contracts, and these regulations were recently refined due to concern that fixed-price contracts were being overused in high risk areas. It is doubtful that legislation should cover this area except to prohibit, as it does, contract types contrary to the public interest.

Raise the Dollar Amount and Provide Legislative Coverage for Small Purchases

Current law provides exemption authority from the requirement for formal advertising of small purchases in amounts up to \$2,500 (advertised bidding procedures are expensive). This amount has been in law since 1958 but economic trends since then indicate that it should be at least \$5,000 or perhaps higher. In addition, present law contains no coverage or guidance in connection with the making of such procurements.

About 7 million of these actions take place annually in DOD alone totaling several billion dollars. To avoid misunderstandings and improve the procurement process, the Congress should consider including some general guidance in the act dealing with these procurements. For example, the law could provide a basic policy statement on

minimum and simple competitive procedures to be followed and require the agency to periodically streamline its small purchase operations based on bi- or tri-annual studies of industry practices and modern management techniques.

Clarification Should Be Made of Competitive Range in Negotiated Procurement and When Discussions Are Required

There is some confusion as to what constitutes a competitive range under negotiated procurement, when discussions should and should not be held with those offerors within the competitive range, and how to conduct such discussions in such a way as not to violate the prohibition against auction techniques or violate another requirement to reject late or modified proposals. In these circumstances, it appears that the procurement official can do no right—or wrong.

The act, by amendment in 1962, requires oral or written discussions with all offerors in a competitive range in negotiated procurement except where adequate competition or prior cost experience is likely to produce reasonable prices without such discussions. (This exception language in the law apparently had in mind only production contracts where prior experience would sometimes be available.) The exception is permitted only if offerors are notified that the award may be made without discussion.

The act does not define a competitive range, or the factors to be considered in the range, other than price. Nor does the act or related regulations

contain criteria as to the type of areas in which oral and written discussions are expected once a competitive range has been established.

On the other side of the fence, there is an absolute prohibition in the Armed Services Procurement Regulation against using auction techniques (ASPR 3-805.1(b)). The regulation also provides that late proposals or modifications received during the negotiating process should be rejected unless they are of extreme importance to the Government or only one other proposal was received (ASPR 3-506). These provisions are designed to operate against the contractor who submits something less than an adequate proposal in order to "buy a ticket to the ball game" as well as against the contractor who at the last moment, when full competitive opportunity has been afforded, slashes his price when he believes another company may be receiving the award.

In order to get the maximum benefits from competitive negotiation, but avoid undermining the competitive process, there seems to be a need for establishing basic criteria:

- Clarifying the term in the act "price and other factors considered" and the circumstances in which the "other factors" tend to dominate.
- Defining a competitive range both in the early and later procurement stages.
- Describing when discussions should and should not be conducted with those concerns in the competitive range.
- Describing the type of areas in

which discussions should be held and their extent.

For example, at some reasonable point after development and initial production, competitive range could relate primarily to price since there would normally be sufficient pricing and cost experience to either avoid discussions or confine them to price. When there is sufficient experience to permit entering into a firm fixed-price type of contract, discussions may be avoided altogether.

The lack of any discussions is not inconsistent with negotiated procurement and may at times be in the Government's best interest. It is desirable for contractors to come forth with their best prices on the basis that the lowest price may be accepted without discussions. Otherwise, contractors have been known to hold back their best prices preferring to wait until they were at the bargaining table to discuss their final offers. This sometimes leads to repetitive rounds of negotiation and the danger that auction techniques will be used or a competitor's information disclosed, both of which are unethical and prohibited.²⁰

The situation is different, however, in the earlier stages of the competitive process of selecting R. & D. sources for new weapons or space vehicles. In such cases, factors in determining competitive range would emphasize the technical aspects but include business/management factors as well. More extensive discussions would ordinarily take place with those concerns in the final running after the field had been

²⁰ Headquarters Naval Material Command, Procurement Newsletter, "Let's Discuss Discussions," by George W. Markey, Jr., Assistant to the General Counsel (March-April 1968).

narrowed down and would concentrate on critical areas of the proposals.²¹

Some Thoughts on How To Bring About Reform of the Armed Services Procurement Act

Defenders of the Armed Services Procurement Act say that over the years the agencies have adjusted to its provisions; that these provisions have not proved themselves inadequate; and that a new act would bring about the loss of a body of court decisions and Comptroller General decisions interpreting the present law. It is also candidly admitted that the agency has sufficient flexibility under the present act to conduct procurement in almost any manner it sees fit. In addition, there is an "overriding fear" that congressional review and revision of the act would result in more restrictive legislation and, therefore, loss of existing flexibility.

Although historically the GAO has strongly supported provisions of the act, in recent years under the present Comptroller General it has not taken an official position on the need for change. A forward step was taken in June 1968 when the Comptroller General testified before the Senate Subcommittee on Antitrust and Monopoly Legislation on "Competition in Defense Procurement." His statement to the subcommittee recognized that three basic methods of procurement in the Defense Department had evolved over the years; namely, formal advertising, competitive

negotiation, and single-source negotiation. He said, "Each of these methods, when used in appropriate situations, is an acceptable method of procurement."

To sum up, it seems clear that the act discriminates against, and has helped to create widespread congressional and public misapprehension over, perfectly normal and effective procurement methods. These methods are most widely used not only in the DOD and NASA but also in our own private lives, in commercial and industrial practice, and in nearly all advanced civilizations of the world.

To bring about reforms in the Armed Services Procurement Act that would recognize accepted methods of procurement based on a much broader definition of competition would probably require a combination of many things to happen. Some examples follow:

1. *Resolving the basic policy issue of whether the Government is going to let the "fear of favoritism," etc., be the overriding factor in dictating procurement procedures or let the needs of the procurements themselves dictate the procedures.* A policy in favor of the latter would mean relying more on professionally trained personnel (with backgrounds in engineering, procurement, and logistics) and fully utilizing their backgrounds in acquiring items "competitively"—not at the lowest initial cost—but at the lowest ultimate cost including consideration of quality, simplicity of design, ease of maintenance, and operating costs

²¹ For further elaboration, see paper entitled "Government Selection of Contractors for Research and Development," by Paul A. Barron, Deputy Director of Procurement, NASA, contained in the Proceedings Manual of 1968 Conference on U.S. Government Research and Development Contracts, Nov. 7-8, Washington, D.C.

over the life of the item. It would mean also relying on the integrity of procurement disciplines, the integrity of review processes, and the integrity of the people themselves to curb favoritism. To help accomplish this would probably require more visibility of contracting relationships between the military and industry and promoting the career development and professional identification of procurement personnel to a much greater extent than ever before.²²

2. *More information needs to be furnished to the Congress in a convincing and an understandable way on DOD's current procurement practices.* When problem areas are exposed, they need to be dealt with in proper perspective. GAO can play an effective role here.
3. *More constructive industry participation at congressional hearings, particularly those involving new legislation and policy.* Since industry is so directly affected by the Government's procurement process and contracting practices its (professional) views need to be considered more often in congressional hearings.
4. *More forums for discussion among members of the legisla-*

²² Based on trends in industry, it appears that raising the career development level of procurement personnel and giving them wider experience, more authority, responsibility, and opportunity to make real contributions to the procurement process would probably in the long run bring about the greatest savings in Government procurement costs. DOD initiated a departmentwide program in 1966.

tive branch, the executive agencies, industry, and educational institutions. An example of this would be the action of the current president of the National Contract Management Association to invite members of the GAO and others of the legislative branch into the organization as participating members.²³

5. *More positive leadership within the agencies for change and for providing a continuing educational program for the important committees of the Congress having cognizance over procurement matters.* This includes providing in-house facilities and staff to perform this function and to conduct research and testing of new procurement techniques—and, in general, making efforts to improve the procurement system.
6. *Establishing the Commission on Government Procurement.* A bill was reintroduced in the House of Representatives on January 3, 1969. It will, if it is established, provide a broad forum for considering improvements to the Armed Services Procurement Act and other procurement statutes.²⁴
7. *Discussions of the benefits of competition should point out also*

²³ Another example would be the hearings conducted by Senator Hart on "Competition in Defense Procurement," before the Subcommittee on Antitrust and Monopoly of the Committee on Judiciary, U.S. Senate, 90th Cong., 2d sess., June 17 and 21, and Sept. 10, 1968.

²⁴ Supported by the Comptroller General in various statements presented to congressional committees. For examples, see H. Rept. 890, 90th Cong., 1st sess., and Comptroller General's concluding remarks in hearings referred to in footnote 23.

the dangers of excessive competition—which could weaken Government and industry (1) by wasting key national resources through oversolicitation of expensive technical proposals, (2) by encouraging buy-ins that could put a company out of business or induce it to cut corners affecting the quality or safety features of military and space equipment, (3) by eliminating needed services from the developer of the product, (4) by causing unacceptable and costly delays in procurement, and (5) by impairing the reliability of an item or the system in which it functions.

8. *Stressing on the other hand the need for optimum competition and consideration of a prequalification of bidders for high-technology items*—so that where appropriate only qualified companies will be solicited but with ample public notice and equal opportunity to become qualified.²⁵
9. *Insuring the practicality and effectiveness of any proposed legislation to reform the act* by subjecting it (1) to a trial run of several hundred procurements in each military department, the Defense Supply Agency, and NASA, and (2) to intensive hearings during which

the best procurement minds in Government and industry could offer suggestions and approaches.

10. *Demonstrate effective preplanning of proposed procurements in other than extremely urgent situations—particularly when establishing “new sources.”* Such preplanning, among other things, would outline the strategy under which competition would be obtained initially and to the extent practicable during the life of the item. This planning document would, in effect, select from various alternatives the one which provides the most effective and practicable means of obtaining competition for the particular item under the expected procurement environment. A comprehensive Advance Procurement Planning Guide issued by the Navy in 1967 and a revised and more extensive requirement for advance procurement planning placed in the Armed Services Procurement Regulation in the same year represent major steps in this direction.
11. *Establishing separate policies and regulations applicable to substantially different procurement arenas:*
 - Small purchases.
 - Low technology, standard items.
 - High technology, nonstandard items.

Present statutes and their single set of implementing regulations are ori-

²⁵ Proposed by Prof. Ralph Nash, George Washington University, in a statement presented to Senate Antitrust and Monopoly Subcommittee on June 21, 1968 (hearings identified in footnote 23). Prequalification of bidders also supported by Col. William Thybony, former Chairman, ASPR Committee.

ented primarily toward procurement of unsophisticated items.

In an attempt to deal with all procurement situations, the regulations have become so voluminous and complex over the years that no one procurement official, or private company (particularly a small one), can reasonably expect to be knowledgeable of them or keep up with the continuous changes. It might be much more useful to publish a separate set of regulations tailored specially to each major procurement arena: (1) Small purchase operations, (2) standard or conventional items for which there is a civilian production base, and (3) highly

sophisticated, complex hardware or weapons systems.

A separate set of regulations developed for each of these distinctly different procurement arenas ought to be considered for the sake of simplicity and utility. And instead of different sets of regulations in Federal agencies (DOD, GSA, NASA, AEC) there could be a uniform set for use throughout the Government to achieve the much needed uniformity in Government contracting. This will provide also regular channels to coordinate Government procurement practices and to automatically extend use of sound regulations developed by one agency to other agencies.

Problems in Economic Analysis of Federal Programs

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By Keith E. Marvin

This article discusses the importance of correct use of the discounting technique in benefit/cost analysis and related improvements that need to be made in analytical efforts. It is based on a speech presented by the author before the Military Operations Research Symposium, Monterey, Calif., on December 10, 1968.

The formal introduction of the planning, programming, budgeting (PPB) system in 1965 was an important step taken to improve the Federal budgeting system. Because the PPB system has a direct impact on financial management, on agency efficiency, and on the effectiveness of agencies' programs, we in GAO have a strong interest in it. It follows that we are equally interested in discounting as a measure of time preference, and in measures of uncertainty, both of which are problems which must be dealt with explicitly to place future cost and benefit alternatives in proper perspective.

The Changing Role of GAO

Because GAO is an agency of the Congress, the changing interests of the Congress will have a considerable impact on its work. There is clearly a growing interest within the Congress in

improved analysis and improved information systems which might provide the Congress with a better program evaluation and review capability. Bills have been introduced in both Houses of the Congress directed to this matter. For example, the Legislative Reorganization Act of 1969, which has been submitted in both Houses of the Congress in the current session, would among other things call for specific support from GAO on both analysis and supporting information systems. A similar bill did not pass the House in the previous session, but the reasons appeared to be its provisions affecting the Congress rather than those affecting the GAO.

It is important to note that GAO itself has undergone a complete face-lifting over the past two decades. It originally was devoted almost entirely to a centralized and detailed audit of

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vouchers for all types of Federal Government expenditures many months after the transactions took place. This kind of work now has been essentially eliminated from GAO operations and replaced by the comprehensive audit approach, in which a review and testing of the agency's internal management control of the function or program of interest is an important first step in any investigation so that detailed examination of specific transactions, programs, or systems can be most efficiently planned to yield additional information. Paralleling this has been a decentralization to 16 regional offices out of which a large part of the investigative work is performed directly at agency or contractor sites.

With regard to the interest of the Congress in PPB, the Comptroller General suggested on March 26, 1968, in hearings before the Senate Subcommittee on National Security and International Operations of the Committee on Government Operations that the Congress and its committees could inquire of the responsible executive branch officials as to the specific objectives sought, the alternatives which were considered, and the results of the analyses of the alternatives. In other words, the Congress should be able to obtain substantive information developed from the executive agency PPB systems which would be helpful in its evaluation of the Federal programs.

GAO is exploring the ways in which it can be responsive to this need, and, obviously, we will have to cope with the problems of uncertainty and time preference in order to accomplish this. GAO is in a position to take a very compre-

hensive point of view toward this responsibility, Government-wide and program-wide.

Congressional Interest and GAO Involvement in Measures of Time Preference

In considering the future interest of the Congress in improved analytical methods, it is important to remember that there is not just the Congress as a whole to consider, but also, the individual Members and committees. The interests of the committees are frequently a reflection of the interests of the controlling Members. However, it is a fact that the interests expressed by the Congress in improved program review and analysis have been representative of both older and newer Members and also have been representative of both parties.

The Congress has entered into discussion of economic analysis of specific programs or within specific agencies for many years. This apparently has been stimulated from time to time by the activities of the executive agencies in this regard. For example, the passage of Public Law 801 in 1956 requiring 5-year projections of manpower levels and total costs for newly proposed programs was, in effect, a legislative recognition of the efforts, which began in the mid-1940's, by the Bureau of the Budget to accomplish longer range budget projections.

Publication of Senate Document 97 in 1962 was a formal recognition by the Senate of the usefulness of the policies, standards, and procedures established by the President's Water Resources Council in response to his request in 1961 that the Secretaries of the

Interior; Agriculture; Health, Education, and Welfare; and the Army should jointly review the existing standards and recommend any necessary changes. The new procedures superseded BOB Circular No. A-47 which had been in effect since 1952.

The actions of the President and the Council were confirmed with the establishment by law of the Water Resources Council in 1965. This history is an interesting study of the interrelationship and interaction of the executive and legislative branches with regard to establishing evaluation policies and procedures. There were Senate resolutions as early as 1956 which expressed the intent of the Senate in the evaluation of water resources alternatives, and it was clear that Senator Kennedy's involvement in this legislative process was a prelude to his Presidential directive to the agency secretaries in 1961.

There does not appear to have been much congressional involvement in economic analysis of other programs which compares with that just described for water resources alternatives. Only after formal establishment of the PPB system in 22 Federal agencies in 1965 did the Congress, in general, appear to have considered the potential, both good and bad, for such analysis on a Government-wide basis. This interest culminated in two well-known series of hearings. The hearings of the Subcommittee on National Security and International Operations of the Senate Committee on Government Operations may have been of greatest interest to the Department of Defense (DOD) for two reasons. First, Dr. Alain C. Enthoven, the then Assistant Secretary

of Defense for Systems Analysis, testified at these hearings in 1967, and second, the major interest of this committee was in the effects of economic analysis on defense and other activities having international implications.

The other series of hearings on the progress and potential of PPB began at about the same time under sponsorship of the Joint Economic Committee. The September 1967 hearings by this committee devoted one entire day to a discussion of interest guidelines for Federal decisionmaking and testimony was heard from Messrs. Jacob Stockfish, Morton Kamien, and William Baumol, all well-known economists.

The testimony of the Comptroller General before the Joint Economic Committee on January 29, 1968, concerned a report to the committee on a survey conducted by GAO in late 1967 of discounting practices in the executive agencies. The GAO survey covered 23 Federal agencies of which 10 had used discounting in some form in the preparation of their fiscal year 1969 budget. Eight more of the 23 had plans to use discounting in the future. Only five had no plans to use discounting. The survey also revealed that the explicit discount rates in use varied from a low of $3\frac{1}{8}$ percent, in accordance with joint agency practice for water resources program evaluation, to a high of 12 percent.

The conclusions of the GAO report (B-162719, dated Jan. 29, 1968) on the survey of discounting practices recognized that the agencies might be making good use of the technique in evaluating individual projects; however, the report concluded that there

was greater value in the use of discounting when the decisionmaker must choose from many competing projects and that this called for a common standard with justification for variations in the discount rate which might be appropriate in special circumstances. The report also concluded that, although the discounting technique was generally accepted by the agencies, improvements in consistency of application among the agencies were necessary if the results were to be of most use to the Bureau of the Budget and the Congress in their review of the programs submitted for consideration.

The report concluded further that there was little recognition that the evaluation of Federal programs called for a common yardstick for use in considering programs of all agencies. This statement may have been misinterpreted by some readers to mean that GAO was recommending a single discount rate for all agencies and programs. The GAO report did not recommend a single discount rate. It did demonstrate that the rate prescribed for water resources projects, which was related to the coupon rate of long-term bonds, was definitely too low for use in the evaluation of current commitments of Federal funds.

The report concluded that the difference between a discount rate related to the true cost of borrowing and one related to opportunity cost in the private sector was not as great as had been commonly supposed. It did not mention the allowance for inflation which probably is reflected more quickly in the private rates of return than in the long-term bond rates. Removing this allow-

ance from private rates of return might bring the two concepts still closer together. The report also demonstrated that small scalar changes in a rate around 10 percent are much less important than the same small scalar differences in a rate around 3 percent. This fact has also been demonstrated by economists such as Mr. Stockfish.

The Status of the Discounting Debate

My own summary of the debate over discounting as we now find it is as follows:

1. There is a general concensus that rates of interest significantly below the current yield on long-term Government bonds are inappropriate for use in evaluating alternative future Government expenditures. This current yield is now regarded as a lower bound for the range of risk-free economic measures of time preference. Currently, this consensus establishes a floor in the neighborhood of 5 percent.
2. The use of social rate of time preference, which has commonly been well below the cost of borrowing, has fallen into disfavor. There have been some recent efforts by economists to justify a so-called social rate of time preference which is within the range of the acceptable economic measures. I prefer the conclusion of Otto Eckstein in his July 31, 1968, testimony before the Joint Economic Committee in which he said:

There is no generally agreed upon empirical basis for deriving the rate of social time preference. One can make plausible arguments in favor of high or low rates. * * * Even if one accepts the argument of a collective desire to redistribute income to the future, that is, even if one grants the theoretical argument in total, it is still very dubious that public investments are the most desirable method of accomplishing this goal. A higher rate of taxation, reducing the Government deficit, lowering interest rates, and permitting a higher rate of capital accumulation, whether private or public, is a far more direct and efficient method of making provision for the future than to provide a privileged access to cheap capital for a few kinds of economic activities which have no extraordinary growth potential.

3. It appears to me that there has been too much debate over the cost of money and the opportunity cost, relative to discussion of the proper handling of inflationary factors. As Mr. Kamien and others have pointed out, alternatives are usually costed in present dollars. To the extent that this is true, the discount rate applied to the future dollar costs and benefits should be deflated so that anticipated inflation is not, in effect, removed from uninflated dollars. Although one might consider 10 percent as a proper measure of opportunity cost in the private sector, which reflects anticipated inflation, it would be incorrect to apply this to the time-phased costs in present dollars. Rather, the rate should be reduced by the rate of annual inflation which we are experiencing, or at some reduced annual rate of

inflation, on the assumption that the Government will provide some improved control of the inflationary forces in our economy.

It is interesting that Senate Document 97, which describes the evaluative procedure for water resources, devotes slightly more space to the discussion of price-level adjustments than to the specification of interest rate. I suppose the reason that the interest rate has been more debated is that Senate Document 97 prescribes a specific procedure for determining the interest rate whereas the adjustment for price level is left up to the agency pending the development of mutually acceptable long-term price projections.

4. I believe that a failure to discount or to express time preference by other means, on the basis that further study is needed, is not justified. I do not believe that a substantial amount of further study is needed, or justified, for determining a satisfactory interest rate for use by the Government agencies. It seems to me that it should be possible now for the Congress and the executive departments to agree on an interest rate, which, with relatively few exceptions, would be used for computing the dollar benefits and costs of all future programs on a common time basis. Such a rate would by no means be the only rate which could be used or the rate which will actually exist at any particular time in the future, but the agreed on rate would be better

than the use of no rate at all or the use of a widely varying range of rates for the various agencies.

5. I believe that the other problems of economic analysis, such as risk and uncertainty, should receive relatively greater attention in our professional debates. For example, the specification of water resources project benefits in the area of flood control and recreational benefits can generate greater uncertainty in the benefit/cost ratio than the remaining differences of opinion about the proper interest percentage.

When these other uncertainties are considered, one wonders if too much attention has already been given to the benefit/cost ratio as a means of deciding which project should be accepted. This seems particularly true when benefit/cost ratios are computed using benefit and cost projections for 50 to 100 years in the future, as they are for water resources programs. For example, I wonder if water resource analysts are giving consideration in computing flood control benefits to the possible improvements of long-range weather prediction which might result from weather satellites. These analysts would not have thought of such a thing 15 years ago, and I do not believe they can predict scientific advancements of this type more than a few years into the future.

Very few, if any, significant Government programs can have all benefits measured in dollars which are then susceptible to an

interest rate calculation. It seems to me that an overreliance on benefit/cost ratios either can be misleading to the Congress and the public in comparing alternative programs or can cause the Congress and the public to reject altogether such quantitative approaches to decisionmaking.

What Measure of Time Preference Is Best?

I do not want to leave the impression that the discounting technique is the only acceptable way to consider time preference. Discounting future benefits and costs to a common present value is perhaps the cleanest method procedurally and I believe that this is the reason it is preferred by most economists.

I believe that, in determining what procedure is best, our major concern should be behavioral effects rather than ease of computation. That is, what does the decisionmaker think the numerical outcomes mean? I believe we must be careful that we do not exhibit an illusion of accuracy which does not exist. Furthermore, I believe that the presentations which are provided to decisionmakers should be selected to emphasize the most accurate intuitive understanding of the situation.

There are relatively few Defense Department programs in which the benefits can be expressed in dollars so that they can be discounted to present value by use of a discount rate. It has been stated rather frequently that the discounting method is still useful to the decisionmaker for correctly comparing the costs of all alternatives. This is

theoretically correct; but, intuitively, I am worried to think of decisionmakers in DOD looking at new alternative systems and having implanted in their minds total system costs which may be only 60 percent of actual system costs, even if things turn out right. Of course they may be shown undiscounted costs also but the danger still exists that the lower number may be remembered and used incorrectly.

If, instead, the alternatives were evaluated by applying a compound interest rate to the cost stream, the decisionmakers would see system costs in terms of equivalent future value, or future worth; i.e., a cost increased by the lost earnings which would result from alternative uses of the actual estimate of costs required. It seems somewhat more defensible to me to compare an estimate of future worth with the estimate of future effectiveness than to compare the present value of future costs with the future effectiveness. Decisionmakers do not intuitively discount future effectiveness to the present when they consider alternatives. Rather, they very likely make intuitive adjustments in their thinking, taking into consideration possible engineering changes which would enhance future capability, and, therefore, consider an inflated future effectiveness in comparison with whatever system cost is presented to them.

This consideration of alternative procedure does not apply to DOD only, because, as I have already indicated, there are few Government programs in which the total benefits can be expressed in dollars.

Uncertainty Considerations

Uncertainty has many aspects, most of which have not been defined very specifically; i.e., uncertainty in the sense of those things which cannot be specified by a known probability distribution. I believe that defense weapons systems analysts have learned to correctly handle known probability distributions in their analyses; e.g., probability of kill when evaluating effectiveness of munitions and probability of any given system reliability when evaluating the availability of a particular vehicle for delivery of a warhead. Other agencies of the Government are also learning how to specify tactical risks in terms of probabilities.

The kind of uncertainties which will continue to plague program analysts are the things which determine useful life of a program or system. Program life is an element of uncertainty which should probably be treated more consistently and more explicitly than it has been. I believe that, in spite of the existence of multiyear financial plans, we still have decisionmakers who choose alternatives using only the next year as their basis for comparison. In contrast to this, we have defense analysts looking anywhere from 5 to 20 years into the future and water resources people looking as far as 100 years into the future. While I would certainly not suggest that we should select a single limit of useful life as applicable to the planning of all programs, it does seem that there might be more consistency. At least this deserves some specific study.

I believe that we, in GAO, will have to be concerned about useful program

life if we are going to help the Congress in its efforts to balance the long-term benefits of all of the alternative uses of our national resources. I believe it can be demonstrated that the proportion of our resources going to Defense is much greater in relation to long-term benefits than is commonly realized. This is true when the effective life of nondefense investment alternatives is significantly longer than the life of defense systems. The desired effectiveness of such nondefense alternatives continues to be delivered during one or more replacements of the defense alternatives.

For example, although water resources benefits are uncertain 50 years hence, it is obvious that there will be some benefit, unless perhaps we learn to feed ourselves chemically without resort to agricultural products. Even in that event, we might value recreation quite highly. Investments in our inner cities, it seems to me, obviously have a life much longer than the 5 or 10 years which is typical of weapon systems and perhaps they have a useful life of 30 to 50 years which should be considered.

I believe that one of the palliative arguments during the past 20 years for large defense expenditures has been the side benefits such as technology which may be transferred from the research and development stimulated by weapon systems development. While this argument may be valid if we are considering international competition for aircraft sales and the effect on balance of payments, it fails miserably when we consider our pressing social problems.

We see little or no improvement which has been made in the technology of home construction and there is not a very significant potential transfer, in my opinion, from the defense research and development to this national objective. The most interesting research into this problem has been outside the defense research community. Furthermore, such research must involve social and motivational aspects to be fruitful, when and if the local jurisdictional impediments can be solved.

The trouble with the situation just described is that the Congress and the public are conditioned to seeing the amount of defense costs as a percent of the annual budget or of the annual gross national product. If my hypothesis is correct, the percentage relative to future benefits over a long period is much greater. I believe that we should compare more carefully the full long-term benefits of nondefense and defense programs for the information and benefit of the Congress and the public.

Better Systems Analysis Is Needed

One method of dealing with uncertainties, such as useful program life, would be the more consistent use of sensitivity analysis. Federal agencies do not now have specific guidelines as to when sensitivity analysis should be used. I suspect one reason that more sensitivity analysis is not done is that it can become very time consuming and possibly confusing. I think analysts need to limit the factors which need to be treated by sensitivity analysis. This is one reason why there should be agreement on a specific interest rate, at least for each major category of

programs, thus avoiding the need to determine the sensitivity of program benefits and costs to a range of interest rates.

The estimation of useful program life is so fraught with unknowns and uncertainties that I see no solution other than sensitivity analysis to aid decisionmakers in understanding the importance of this factor. It is worth noting here, as pointed out in the January 1968 GAO report on discounting practices, that choice of a program life for analysis which is much greater or much less than the most likely program life creates an implicit discount or interest rate which may

differ by 2 or 3 percentage points from the rate specified in the analysis. This simply emphasizes how little good it does to look at varying discount rates if we are still highly uncertain of the actual program life.

Conclusion

Substantial additional effort should not be needed to determine the interest rate for use in considering time preference with regard to program costs and economic benefits. Rather, analysts should devote relatively more attention to better analytical treatment of uncertainty, such as the uncertain length of useful program life.

721340

Some Comments on Total Package Procurement

By George D. Gearino

The author discusses the philosophy of a total package procurement contract and some of the significant features encountered in the survey of the C-5A aircraft program.

In 1965 the Air Force contracted for the C-5A aircraft under a new procurement technique called the Total Package Procurement Concept. This concept, commonly referred to as TPPC, is an outgrowth of attempts by the Department of Defense to institute competition into the procurement of major weapons systems. Previously, these procurements had been largely sole source. The idea of TPPC has generally been credited to Assistant Secretary of the Air Force, Robert H. Charles. Although it is still in the experimental stage and undergoing some changes, TPPC is being used on other major procurements and appears to be the model for the future in major defense contracts.

Introduction

TPPC is intended to place as much development, production, and support as is possible of a major weapons system under one competitive umbrella. This entire package will be subject to all the advantages of competition. Previously, competitors tended to provide unrealistic price estimates and to over-

state proposed performance because of awareness that follow-on production procurements would of necessity be sole source to the winning competitor. This is referred to as "buy-in" bidding and TPPC is designed to prevent this.

TPPC is expected to motivate the winning competitor to emphasize simple design, economical production, easy maintenance, and high reliability. The buyer will benefit with an economical and reliable product. This technique is also expected to encourage the contractor to practice economies from the outset with respect to suppliers and subcontractors. It will provide incentive to the contractor to stabilize design and keep to a minimum the changes normally associated with a development program. To attain these objectives, the contractor will have to be encouraged to assume much of the development risk previously assumed by the Government and will have to be motivated to meet not only price but also performance commitments.

The C-5A procurement included in the Request for Proposal (RFP) and in the contract unique features not pre-

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Photo Courtesy Lockheed-Georgia Corp.

First Air Force/Lockheed C-5 Galaxy built—and first to fly—lines up with the kind of U.S. Army load it will be able to carry in Military Airlift Command service. Total load, including 50 troops accompanying equipment, weighed 256,000 pounds. It includes: one M109 self-propelled 155-mm. howitzer, one M113 armored personnel carrier, one M577 armored command post, two 2½-ton trucks towing 1½-ton trailers, three ¼-ton trucks with one 106-mm. recoilless rifle each, one ¼-ton truck towing a ¼-ton trailer, two 5-ton trucks towing 105-mm. howitzers, and three ¼-ton ambulances. With this load aboard, C-5 could fly more than 2,900 miles nonstop at a cruise speed of about 530 miles an hour and land in a distance of 4,480 feet.

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viously experienced in a conventional procurement. Some of these unusual features were:

1. A model contract to be completed and signed by each competitor was included in the RFP. This signed contract referenced the competitors' price and detail specifications on the performance to be obtained. After selection of the winning competitor, the Government representative affixed his signature to the model contract and it became the official contract document.
2. The RFP specified that there would be no negotiation of the proposed price. The price and performance commitments included in the proposal were binding.
3. The RFP also contemplated that Government-furnished equipment would be kept to a minimum or eliminated completely.
4. The contractor was permitted to select one of several methods by which he could participate in incentive profits. Each of these methods was explained in the RFP.

The contract document also contained some unusual features. Some of these were:

1. A correction-of-deficiencies clause provided that the contractor must meet or exceed performance criteria included in his proposal. This was intended to prevent any degradation of the specifications. Hopefully, this clause will preclude the Government from obtaining a less than acceptable product.

2. The contract placed full systems responsibility on the prime contractor. This responsibility included the interface of any major Government- or subcontractor-furnished equipment with the airframe. This is intended to place full responsibility for all performance criteria on the prime contractor that must be demonstrated during the test phase of the program.
3. The contract covered not only development but also production and options for future productions. If the options are exercised, the contract will span approximately a 10-year period. For this reason, the contract included a clause to protect the contractor from abnormal fluctuations in the economy over this extended period.
4. The contract included incentives on cost and performance to motivate the contractor to make every effort to keep costs to a minimum and to exceed proposed performance. The performance incentives are outside the contract price and will be paid even if the total cost exceeds the ceiling price.
5. The contract included a clause that any changes of less than \$100,000 each will be accomplished at no change in contract target price. As the magnitude of changes over \$100,000 increases, profit rates applicable to these changes will decrease. The objective of this clause is to minimize design changes during and after

development. Experience has shown that these changes are a means of recovering losses incurred during the development stage. These changes also tend to delay production of operational units.

The Department of Defense (DOD) recognized that the Government must relax certain controls considered restrictive in light of TPPC. Certain reviews and approvals which normally occur at different stages of development and production must be eliminated. This places on the contractor more responsibility to meet specification requirements and precludes any abrogation of the correction-of-deficiencies clause.

TPPC's Advantages and Some Related Audit Problems

There appears to be general agreement among DOD officials that there are six principal advantages to be achieved from a TPPC procurement. However, a recent GAO survey of the C-5A program showed that some of these benefits presented problems to the GAO auditor. The success of TPPC hinges on achieving these benefits. Therefore, the auditor must recognize the pitfalls of these benefits when making an analysis of TPPC.

1. The concept requires a tightening of design and configuration discipline in both the proposal specification and the work under contract.

One problem associated with this benefit is that the Government must be more specific in detailing exactly what is required of the weapons system. The

GAO auditor reviewing the procurement must make a detailed study of the request for proposal to ensure that specific parameters are established against which competitive proposals can be measured. Also, the auditor must determine that these parameters are carried over into the contract to provide a base for measuring performance rewards.

2. TPPC inhibits buy-in bidding with its related problems of overstated performance and understated cost. Competition over more of the complete program is accomplished and thereby provides some assurance that price is reasonable.

The primary problem associated with this benefit is making a determination that competition did in fact exist. The very size of these procurements and the increased risk to the contractor restrict the competitive field. Only those fortunate few who can afford to invest a considerable amount of their resources in program definition and can assume the risks associated with the procurement are able to compete for the award. When the competitive field is narrowed to only two or three bidders, then outside conditions, such as a backlog of business, could influence a competitor's proposal and have the effect of negating competition.

3. Cost and performance commitments motivate the contractor to design, at the outset, for economical production, high reliability, and easy maintenance.

The problem associated with this benefit is that it requires all competitors to define these commitments dur-

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ing proposal preparation, and this increases the cost of contract definition. Although competitors are generally awarded fixed-price definition contracts which reimburse a part of this definition expense, the competitors are inclined to incur costs over and above the definition contract amount. The accounting treatment of these nonreimbursed costs presents a problem. Care must be taken to ensure that these costs have been properly categorized among basic research and development, bid and proposal expense, and costs directly associated with the work prior to contract award. Agency auditors usually examine into the treatment of these costs during their periodic reviews of overhead allocations. These reviews can be helpful in any GAO examination of the definition contract.

4. The contractor is encouraged to obtain supplies and services from the most reliable efficient sources.

To obtain maximum advantage of this benefit and to ensure that there is no interference in the contractor's activities which may later partially negate the correction-of-deficiencies clause mentioned above, the Government must refrain from reviewing and approving the contractor's make-or-buy decisions and subsequent changes to these decisions. It is conceivable that the contractor could subcontract a major portion of the work on a fixed-price basis and ultimately participate in rewards for cost underruns which are actually earned by the subcontractors. Also, the contractor can conceivably subcontract work to foreign suppliers and contribute to the balance-of-payments problem without Govern-

ment objection even though a Buy American clause is included in the contract.

5. The Government is permitted to make a choice between competing contractors on the basis of binding commitments over the entire program.

To achieve this benefit, the Government must place more emphasis on the techniques used in source selection. More attention must be given to the specifications and performance guarantees than had been given under previous procurements. In the past, price had been the primary factor in deciding the winning competitor. The GAO auditor, who is usually price oriented, must also become specification oriented when reviewing the selection process.

6. Both the Government and the contractor benefit from long-run program stability which permits better planning and funding.

Although this benefit appears to have no immediate disadvantage, it is possible that program terminations may be more expensive under TPPC procurement than under conventional procurements. Comment on this will have to be deferred until a termination is actually experienced and can be analyzed.

TPPC's Disadvantages and Some Related Audit Problems

Our survey of the C-5A program revealed some disadvantages in procuring under this concept and some new audit problems. Some of these audit problems require changes in the audit approach previously used to review

contractors' activities and contract administration.

1. Increased cost in preparing a price proposal and specification document.

Because competitors must define so much more of a weapons system in the proposal than had previously been defined, the expense of proposal preparation is much greater. This additional cost may be nothing more than a shifting of certain development expenses to the definition contract. However, problems are presented with the allowability of these costs to the unsuccessful competitor. Care must be exercised to ensure that these costs are not being recovered through overhead distribution. A review of agency overhead audits can be helpful in determining if these costs are being allocated to other Government contracts.

Another problem is that increased proposal expense restricts competition to only those companies capable of absorbing these high costs. Also, many companies are reluctant to incur large definition expense without assurance of award of the contract.

Since competition is necessary to the success of the program, it is necessary to review both the successful and the unsuccessful proposals. A review of the unsuccessful proposals is necessary to establish the existence of competition and to ensure that proposals are responsive to the RFP. After contract award, this could present a problem of access to those proposal records and supporting documents prepared at the bidder's expense.

2. TPPC encourages disengagement from the contractor's day-to-day

activities and thereby alters the Government's normal contract administration responsibilities.

TPPC encourages the contractor to select and negotiate subcontracts, to plan production schedules, to make engineering and management decisions, etc., without Government review and approval. Therefore, new techniques must be devised to effectively monitor the contractor's activities after contract award. It logically follows that both the agency auditor and the GAO must devise new techniques to review this monitoring.

Another problem associated with this disengagement is that it has a tendency to inhibit independent reviews of the contractor's activities. For example, it is not yet completely clear what GAO's rights are with respect to performing postaudits on this type of contract. Also, after contract award, there is a reluctance on the part of the Government either to make management suggestions or to criticize contractor actions lest they be construed as interference. Consequently, the Government must continue surveillance over the contractor's activities without exercising control over these activities.

3. Because the competitors must define a major part of the weapons system during proposal preparation, the source selection process must include a review not only of cost but also of proposed production techniques, company management, proposed maintenance and operating costs, etc., before making a selection of the contractor.

This requirement places a tremendous burden on the source selection

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committee and shifts some of the Government's administrative responsibilities to a time frame prior to contract award. A review of a total package procurement must include an analysis of the method by which the selection was made and a determination of whether there was sufficient information available to make an intelligent selection. Another problem associated with reviewing the selection is ensuring that each element used to make the selection is properly weighed. TPPC encourages design of a product that will not only meet performance criteria but also achieve economical operation and low maintenance over the life of the weapon. Therefore, the importance of operating and maintenance costs should be fully considered, as well as design and production estimates, when making the selection. The GAO auditor reviewing TPPC must satisfy himself that the selection was not made solely on proposed design and production costs.

4. Another disadvantage of this type of procurement is that the prime contractor may tend to pass to subcontractors much of the risk associated with meeting price and performance criteria.

The TPPC contract provides for a higher profit rate than conventional contracts, and the incentive-profit-sharing ratio must be favorable to the contractor. Because the contract will usually cover a longer period, a clause is needed to protect the contractor from abnormal increases in labor and material costs. The prime contractor can conceivably pass much of the risk associated with performance and price to the subcontractors without passing

down some of the protection associated with this risk (e.g., higher profits and a cost increase clause). Although GAO is usually not involved in proposed profits of subcontractors, too low a profit structure could affect the quality of the subcontractors' work. Consequently, the GAO auditor must satisfy himself that the prime contractor is effectively monitoring the subcontractors' operations.

An interesting side problem associated with subcontractors is the determination of administrative responsibility. Under the philosophy of TPPC, the prime contractor is responsible for selecting subcontractors, reviewing price proposals, negotiating subcontracts, and administering the subcontractors' operations such as quality and production control. Many of these subcontractors occupy Government facilities, and many times a resident auditor and an agency contract administration team are stationed at the plant. If the Government representatives located at the subcontractors' plants perform these services for the prime contractor, material savings can be realized. However, this could result in the Government's assuming a responsibility which properly belongs to the prime contractor and, in effect, would be negating an advantage of TPPC.

Conclusion

We have recently completed a survey of the C-5A program. One primary objective was to learn about TPPC and how we in GAO could effectively review this new concept.

GAO is charged with reviewing the manner in which Federal agencies ad-

minister Government contracts. Because the Government's direct financial interest is in no way changed by TPPC, we were vitally interested in contract costs, management of Government-owned property, etc.

As we learned more about TPPC, we soon found that the usual review techniques would not work. For example, we found that, in a TPPC program, we should have been equally interested in how the agency disengages from the contractor's day-to-day activities as well as in the manner in which the agency administers the contract.

The philosophy of TPPC requires the auditor to place more emphasis on reviewing the competitive atmosphere surrounding the procurement. Competition on a TPPC program is necessary to provide the protection that price is reasonable. The contract is structured to recognize the existence of this competition by reducing some of the surveillance which has previously been exercised over conventional-type procurements. The auditor therefore must make an in-depth review to satisfy himself that effective competition did exist.

Another necessary change is for the GAO auditor to review in detail both the contract and the request for proposal. One objective of this review is to ensure that the parameters against which incentive rewards will be computed are clearly defined. Another is to determine if the contract is structured in such a way as to ensure that the contractor will take advantage of each opportunity to reduce cost and improve performance.

The GAO auditor must make a greater in-depth analysis of the source

selection process than had been made on previous procurements. During this source selection, the Government must satisfy itself that the contractor has the necessary management know-how, engineering and production capability, test plans, quality and reliability programs, etc., to achieve price and performance goals. This can only be done by an in-depth review of the proposal. Therefore, the Government's major administrative responsibility occurs prior to contract award and places greater importance on the source selection process. The auditor can best determine if the Government's interests are being protected by giving more attention to how this source selection was made and to whether all available tools were used by those making the selection.

The auditor should also review the method by which the Government representatives disengage themselves from the contractor's activities while still retaining enough information to permit program redirection or cancellation if necessary. The general relaxation of controls and hands-off philosophy engendered by TPPC prevents the Government from monitoring the contractor's activities in the usual manner. Therefore, new ways must be found to administer the contract and the auditor must analyze them to ensure that a proper balance between control and surveillance is achieved.

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TPPC is a significant departure from previously used procurement techniques and is by no means the last change we will see. The DOD is constantly reevaluating and changing its procurement methods. Some recent in-

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novations, in addition to TPPC, are DOD Directive 3200.9 covering systems development and the 7000 series directives covering management control systems. Currently being studied are cost performance and schedule control systems and uniform cost accounting standards for contractors. The GAO auditor must keep abreast of these new developments and must alter survey and review techniques to meet these new challenges. Indications are that TPPC will be used extensively in future weapons system procurements. Hopefully,

our experience on the C-5A program will benefit others in GAO who will be reviewing these future programs.

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Cost Comparisons

721341

By Morton A. Myers

A brief discussion of some of the problems of making cost comparisons where the factor of cost is important in the decisionmaking process.

The very nature of a cost comparison necessitates that the detail upon which it is structured be tailored to the specific matters being considered. Thus it is quite possible that an answer to the proper approach for preparing a problematical cost comparison may not be readily available from prior work experiences—or indeed from a detailed review of cost comparisons which previously had been used successfully by others.

To state the immediate problem, when preparing a cost comparison, one is confronted with the task of decisively establishing an approach upon which, eventually, the appropriateness of the cost comparison will be judged by the applicability of the items of cost best suited to a particular set of circumstances.¹

¹In preparing cost comparisons in the Federal Government, Bureau of the Budget Circular No. A-76, Revised, dated Aug. 30, 1967, which contains certain specific definitions, requirements, and limitations in volving cost comparisons, should be consulted and adhered to. Also, for any reader who wants to examine into this matter in greater detail, a number of questions concerning cost comparisons were covered, in detail, by the Special Studies Subcommittee of the House Com-

Sample Circumstances

Assume that a contract provided that the contractor furnish to an agency certain services on a continuing basis over a substantial period of time. The contract stated that the services required would be set forth by the agency on individual work orders and that the agency would reimburse the contractor for the cost of direct labor and overhead and pay a fixed fee for each of the work orders issued under the contract. Detailed information relating to the contract and its performance is as follows:

- In accordance with contract terms, the cost for labor included related charges for employee benefits.
- The contractor's proposal showed that the overhead pool comprised various administrative and operating costs and included such items as depreciation and State and local taxes.
- Net income from the contractor's operations was subject to regular and surtax corporate Internal Revenue Service rates.

mittee on Government Operations in hearings held on Apr. 25, 1968. A number of witnesses, including the Comptroller General, testified, and GAO submitted a cost profile for support-service cost comparisons.

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- An accumulation of billings for work orders issued to date showed that the cost of performing the work with contractor-furnished employees was:

| | |
|----------------|-----------|
| Labor | \$170,000 |
| Overhead | 50,000 |
| Fee | 15,000 |
| <hr/> | |
| Total..... | 235,000 |

- The grade and level within each grade for civil service employees with comparable skills needed to perform services similar to those provided under the contract were known to the agency. The cost of direct labor and related charges for employee benefits for performing work with civil service employees would have been:

| | |
|-----------------------|-----------|
| Pay | \$129,000 |
| Leave | 23,500 |
| Retirement | 8,000 |
| Health insurance..... | 1,500 |
| Life insurance..... | 500 |
| <hr/> | |
| Total..... | 162,500 |

- Most overhead items, such as supervision, heat, light, space, communications, equipment, and supplies, had been supplied to the contractor-furnished employees just as they would have been supplied to civil service employees, and therefore, were not included in the overhead figure of \$50,000 shown above. Any increase in the cost of other overhead items resulting from the use of civil service employees would be more or less offset by a corresponding decrease in the cost of contract administration associated with contractor-furnished employees.

Basis for Solution

In essence, the projected costs of providing equivalent services by the agency can be segregated into three classifications:

1. Costs which are solely attributable to the performance of the service and which can be unquestionably identified as costs that would be additional to current

agency operations (direct labor and related charges for employee benefits, for example).

2. Costs which are not solely attributable to the performance of the service but rather are costs incurred for the common benefit of more than one function (perhaps certain administrative expenses or allocations for depreciation and interest).
3. Costs which are not applicable, inasmuch as they would not, under any circumstances, be incurred by the agency (commonly State and local taxes).

Pertinent Cost Concepts²

The projected cost classifications are based on the well-established accounting viewpoint that the basic requirement of comparative analyses is to examine only those items that will differ in real terms among the alternative courses of action under review. What matters is to find out which outlays or receipts will change as a result of a decision and by how much.

The cost concept that fits this requirement is the concept of incremental cost (or differential cost)—the difference in total cost that will result from selecting one alternative instead of another. The incremental-cost concept is still further appropriate for application in comparative analyses because the concept is also used to refer to the elements of cost that will change as the result of the decision rather than to only the net difference between two sets of cost totals.

The converse of incremental cost is sunk cost, or any cost that will not be different if one alternative is chosen

² For additional discussion and references on pertinent cost concepts, see sections 4 and 6 of the *Accountant's Handbook*, Fourth Edition, Wixon, R., Ed., 1957, New York, N.Y., The Ronald Press Co.

instead of another. This definition therefore depends on the specific problem under review; what is incremental with respect to one situation may be sunk with respect to another.

For example, the salary of the head of an agency and that of his secretary are sunk costs in most analyses, because in most cases their salaries are unlikely to have an effect on the decision to be made. The criteria, as always, are relevance and variability to the decision at hand; and the problem, in identifying costs, is to decide what costs are *relevant* in any particular case. Thus the application of a costing method which disregards the existing sunk costs, regardless of whether work is performed in-house or under contract, is a valuable technique in making decisions.

The application of the concepts of incremental and sunk costs to the sample circumstances would support the validity of a determination that the cost of obtaining services under the contract was about \$72,500 (\$235,000 less \$162,500) in excess of the cost that would have been incurred if the work had been performed by civil service employees with comparable skills.

Limiting Factors

There are limitations, however, in using the results of such cost analyses in reaching decisions relating to the cost-comparison aspects of in-house versus contract performance on very large individual or groups of small, service-type contracts. The reason for this is that some of the excluded costs—such as costs of an agency's administrative services or costs of services supplied to

an agency by the Civil Service Commission, the General Services Administration, or by some other central point within the Government—would tend to become more variable if many services supplied under contract were being considered for conversion to in-house services.

In this regard, it appears that careful consideration must be given to all costs when undertaking a review of alternatives. For example, take the case of a Government installation which has about one-third of the total of its work population supplied under service contracts. If a cost comparison were to be made with the thought of eliminating substantially all contractor-furnished employees, an increase in sunk costs could result. It probably would be necessary to replace the contractor-furnished employees with an equal number of civil service employees if the contractors' operations were converted to an in-house operation.

In such a case, an increase in sunk costs, for perhaps an additional tier or at least a stretchout in agency management at the Government installation, could occur and be solely attributable to the conversion of the operations. Therefore, the increased portion of the sunk costs would become an incremental cost to be used in measuring the true cost of the converted operations.

Lost Income Taxes

Bureau of the Budget Circular No. A-76, Revised, dated August 30, 1967, *requires* that cost comparisons in Government provide for lost Federal income taxes as a "cost" of performing an operation in-house instead of under

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contract. Specifically, the requirement is to:

“Include income and other Federal tax revenues (except Social Security taxes) received from corporations or other business entities (but not from individual stockholders) if a product or service is obtained through commercial channels. Estimates of corporate incomes for these purposes should be based upon the earnings experience of the industry, if available, but if such data are not available, *The Quarterly Financial Report of Manufacturing Corporations*, published by the Federal Trade Commission and the Securities and Exchange Commission, may be consulted. Assistance of the appropriate Government regulatory agencies may be obtained in estimating taxes for regulated industries.”

The loss of Federal income taxes that a contractor might have paid presents a unique problem inasmuch as, technically, it appears that the loss of Federal income taxes would be a minus revenue to the Treasury rather than a cost of any given agency activity. In addition, if it is accepted that there is no distinct relationship between the amount and/or the timing of tax revenues collected by the Treasury and the benefits or services given by an agency that are supported by such revenues, then it appears illogical to treat lost revenues as cost in making an agency cost comparison.³ However, the policy in A-76, to require consideration of foregone taxes, is based on dollars and cents loss to the Government and not on

logic as to what constitutes cost to the specific agency concerned.

Also, it appears that any sum which was computed to represent the taxes would be speculative in nature, inasmuch as the basis upon which the sum was determined could be subject to endless question and dispute. For instance, if previous estimates of corporate incomes were used as the basis for determining taxes that might be foregone, the possibility of considering the effect on the lost taxes of such pertinent matters as tax refunds and credits applicable to future unprofitable operations of a contractor or the enactment of new tax legislation which could include retroactive provisions would most certainly be prevented.

The Bureau of the Budget, in its Transmittal Memorandum No. 1 to Circular No. A-76, states that it intends to keep the provisions of the circular under continuing review and to give special attention to the adequacy of the guidelines contained in the circular for such matters as comparative cost analyses, the circumstances under which cost differentials in favor of private enterprise are appropriate, and the use of contracts involving support services that require minimal capital investment.

Concluding Proposal

Prior to the preparation of a cost comparison, the following sequential approach should be considered as a basis toward the comparison's construction. First, to develop, in as much detail as practicable, the particular set of circumstances which relate to the

³ A very excellent article by David Drinkwater and James Don Edwards discussing the nature of taxes and the matching principle appeared in *The Accounting Review* in July 1965. The matching principle in relation to determining corporate income and the going-concern concept utilizing as an example capital-asset purchases were presented by the authors in conjunction with a theoretical analysis. The information presented here has drawn on the discussion appearing on p. 581 of that article.

matter under review. Second, on the basis of the circumstances developed, to classify the elements of cost as to those which are (a) additional to current agency operations, (b) of common benefit to more than one agency function, and (c) not applicable to agency activities. Third, with the use of incremental and sunk-cost concepts as

guidelines, to identify relevant costs and to select for inclusion in the cost comparison only those costs or portions of costs which will have an effect, in real terms, on the issue being reviewed. The results of such an approach would most often lend themselves to the construction of a more realistic and tenable cost comparison.

721342

Some Considerations in Using Optical Character Recognition Equipment

By Howard G. Rhile, Jr.

In this article, the author explores some of the factors which should be taken into consideration in reaching a decision to use Optical Character Recognition (OCR) equipment to prepare computer input. As used in this article, OCR consists of optical scanning equipment capable of reading typewritten and computer-printed material and converting it to a computer-acceptable code and media.

The OCR input method is distinguished from other automatic input conversion methods such as magnetic ink character recognition and optical mark reading (another type of optical scanning) in that the characters to be read are recognized by their images rather than magnetically or positionally. OCR works on the principle of light reflectance. A strong light is passed over the source document and the machine senses those areas which do not reflect the light. The areas not reflecting light (the character images) are compared with character images stored in the machine's memory. The matched character is then transferred to the computer for direct input or is written on a computer-acceptable medium such as magnetic tape.

Certain features are common to all types of OCR machines: a paper transport system to move the source

documents through the machine; a recognition head to read the characters on the source documents; a memory to compare the characters read with those stored in memory; a code converter to convert the characters into computer-acceptable code; and a control unit.

It is estimated that there are 500 or more optical scanning machines in use in the United States at present. A survey of about 2,200 computer installations by *Business Automation* shows that only about 4 percent of the installations use optical scanning equipment as their basic input device and that keypunching is still the basic input method in about 85 percent of the installations.¹ *Electronic News* estimates that optical scanning input volume now equals about 1 percent of the present

¹ "EDP Salary Study—1968," *Business Automation*, 15 (June 1968), p. 42.

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keypunch volume and that this is expected to increase to 5 percent of the present volume by 1970 and 25 percent by 1975. The National Bureau of Standards estimates that, by 1980, optical scanning input will equal the volume of keypunching and by 1985 will be four times the keypunching volume.²

There are 15 manufacturers of commercial-type optical scanning equipment in the United States at present. Eight of these manufacture OCR equipment. At least three other companies have OCR equipment in various stages of development. In 1955, sales of optical scanning equipment amounted to about \$500,000. In 1965, sales had increased to \$14.5 million. By 1972, however, sales are estimated to reach \$400 million.

It is apparent therefore that the optical scanning input method (including optical mark and optical character readers) is not, at present, a significant factor in the total input volume of computer installations in the United States and that OCR input is only a portion of the optical scanning input. Optical scanning is, however, expected to be the major input method in about 15 years.

While each organization's decision to use OCR equipment should, of course, be based on a careful cost/benefit study of its own peculiar situation, there appear to be certain considerations which are present in varying weights in all decisions to use this equipment.

² Ron Schneiderman, "OCR: Pleasantly Painful Growing Pains," *Electronic News*, 13 (Dec. 9, 1968), p. 43.

OCR Cost Considerations

Perhaps one of the most inhibiting factors in a decision to use OCR equipment is the cost of the equipment itself. OCR equipment is many times more expensive than other input equipment. For example, a Philco General Purpose Print Reader capable of reading eight different type fonts and converting 2,600 characters per second to magnetic tape media rents for \$14,500 per month (including maintenance) and sells for \$530,000. Monthly maintenance cost thereafter is \$3,000. An Electronic Retina Computing Reader Mod IV capable of reading up to eight different type fonts and converting 2,400 characters per second to magnetic tape rents for \$15,000 per month (including maintenance) and sells for \$621,400 with a monthly maintenance cost of \$2,720.

In contrast, an IBM 026 keypunch rents for \$63 per month, a Mohawk Model 1101 keyboard-to-magnetic-tape device rents for \$149 per month. Even other optical scanning machines such as optical mark readers do not approach the cost of OCR machines. For example, an IBM 1231 Mark Sense Reader rents for \$505 per month and sells for \$26,700 with \$42 monthly maintenance. A Digitek 70 Optical Mark Recognition System rents for \$670 per month and sells for \$29,750 with \$148 monthly maintenance.

OCR State-of-the-Art

Another important consideration is the state-of-the-art of OCR input methods. These primarily involve forms quality control (which affects reject rates), reliability of the equipment, and accuracy of data conversion.

The published literature on the use of OCR suggests that an intensive quality control program must be maintained over the documents to be read. TV Guide, which uses a Farrington Model 3010 Multifont Document Reader to read names and addresses from computer-generated subscription renewal turnaround documents, test scans 500 documents every 2 hours during the time the computer is printing the documents. If the reject rate exceeds one-half of 1 percent, the ribbon on the printer is changed. Also, the printer type bars are cleaned every hour when printing turnaround documents.³

Alan Drattell, in an illuminating article in the January 1968 issue of *Business Automation*, points out that United Air Lines, which uses an Electronic Retina Computing Reader to read about 4 million airline tickets, airbills, and refund checks per month, experiences a character reject rate of from 0.5 percent to 0.8 percent. He also points out that American Airlines monitors its OCR rejects and has found that most rejects can be traced to improper preparation of tickets by its field agents and other airlines. The experience of these users indicates that, with stringent quality control over the documents, document reject rates of OCR equipment can probably be kept down to approximately 1 percent. This need for high quality control over documents, however, has probably been a discouraging factor in many companies' consideration of OCR equipment.

Reliability of OCR equipment does not appear to be much of a problem.

³ Anthony I. Rizzo, "OCR for Handling Publication Subscriptions," *Datamation*, 15 (December 1968), p. 70.

The experience of one user, United Air Lines, suggests however that maintenance time may be higher for OCR equipment than for other data processing machines and a long-term breakdown of a high volume OCR machine could create an insurmountable backlog unless backup capability were available. United's Electronic Retina Computing Reader has experienced maintenance downtime of about 20 percent of in-service time as opposed to about 10 percent average maintenance downtime experienced by Federal Government computers. United has arranged for backup capability with another user about 15 miles from its OCR installation in the event of a long-term downtime.

There appear to be two major factors which affect accuracy of data conversion on OCR equipment. The first is the accuracy with which raw data is converted to OCR-readable form; the second is the accuracy with which the OCR equipment converts the OCR-readable documents to computer-acceptable code and media.

In converting raw data to OCR-readable form, turnaround documents probably have an error rate of almost zero since the turnaround documents are generally prepared by computer-driven high-speed printers or some other highly accurate device. The problem of accuracy arises when a non-automatic method such as typing is used. Case histories in the literature (which may be biased) generally agree that typing for OCR is more accurate than keypunching/verifying. Studies, however, bear this out. A study prepared by the Institute of Management

Science⁴ shows that the error rate encountered in typing for OCR input is the lowest of all other manual data conversion methods at 0.9 percent with keypunching/verifying at 2.0 percent and keyboard to magnetic tape at 2.0 percent.

The accuracy of OCR equipment in converting characters to computer-acceptable code and media appears to be very high. For example, Northwestern National Insurance Group reports an accuracy rate of 99.5 percent with its CDC 915 Page Reader. The Institute of Management Science study states that an accuracy rate of 99.9 percent can be achieved with good quality input (clean, well-adjusted typewriters, good ribbon, clean paper); 98.5 percent with medium quality input (manual typewriters in good condition, good ribbon, clean paper); and 96.5 percent with poor quality input (old poorly adjusted typewriters, dirty paper). The fact that OCR equipment is programmable and has memory and control devices much like a computer allows editing such as computation of check digits and hash totals to ensure the equipment's accuracy.

Application Considerations

In addition to these state-of-the-art considerations, there are some general application characteristics which should be taken into account before reaching a decision to use OCR equipment.

It is generally agreed that OCR equipment should not seriously be considered unless it is necessary to input alphanumeric information. If only numeric data is to be inputted, optical mark readers, which are much less expensive to operate than OCR equipment, should be considered.

Perhaps the most important application characteristic is the volume of input to be converted. It appears that, for OCR to be economically feasible, a very large volume of data must be converted. The Institute of Management Science OCR study cited above compares the cost of the OCR input method with five other methods: key-punch/verify, keyboard to paper tape, keyboard to magnetic tape, optical mark reader, and a keyboard/display system. In the OCR method, it is assumed that the input data must be typed to prepare it for the OCR equipment as opposed to inputting turnaround documents.

The study shows that, while the OCR method can convert much more data to computer-acceptable code and media for a given staffing level, the unit cost (the cost of converting one typewritten word) for OCR is the highest of all methods at 0.6507 cent per word when the monthly volume is 4.4 million typewritten words. This is about one and one-half times the unit cost of keypunching the same volume and nearly twice the cost of optical mark reading. This higher OCR unit cost is nearly all attributable to the high cost of OCR equipment. As the monthly volume of work increases, however, OCR clearly becomes the most economically attractive input method. When the OCR

⁴ William B. Moore, "The Input Problem" (The First Lecture of a Four Part Series Presented in October 1968), *Institute of Management Science*, p. 62.

volume reaches 17.2 million words per month, the unit cost is 0.3411 cent or about three-fourths the unit cost of keypunching.

Since the above estimates are, as stated, based on the assumption that the input data must be typed to prepare it for the OCR equipment, it appears that another application consideration should be the extent to which the input to the OCR equipment could be prepared either in whole or part as a byproduct of another process or on a turnaround basis. If this could be done, the OCR input method would become economically feasible at a lower volume than if the input had to be typed.

Personnel Considerations

There are several personnel factors to be considered in using OCR.

The first is that skilled keypunch operators are apparently hard to find. The 1968 EDP salary study performed by *Business Automation* shows that about 15 percent of the approximately 2,200 companies surveyed indicated that keypunch operators were the most difficult positions to fill. A cursory glance at the classified section of nearly any newspaper confirms this. For example, the *Washington Post* of March 2, 1969, lists 26 advertisements for keypunchers. Most of these need more than one keypuncher and one advertisement stated that 30 openings were available. In my opinion, this apparent shortage of keypunch operators could therefore be a powerful influence toward using OCR input methods in a situation where volumes are rising dramatically.

A second personnel consideration is that, by using OCR input methods, a broader segment of the clerical labor force is available to prepare input for the OCR equipment. United Air Lines has stated that the use of OCR has broadened the market for jobs since they can now use typists in their input section instead of trained keypunch operators.

A third consideration, discussed above, is that the error rate encountered in typing for OCR input is the lowest of all other manual methods of data conversion.

Finally, it appears that the input rate for typing OCR input is higher than for any other method. For example, the Institute of Management Science OCR study previously cited states that the input rate for OCR typing is about 20 words per minute while the corresponding rates for keyboard to magnetic tape, coding for optical mark readers, and keypunching/verifying are about 14, 12, and 11 words per minute, respectively.

Summary

In my opinion, a decision to use OCR equipment should be reached as the result of a rigorous cost/benefit analysis. Some of the areas to be considered in this study should be the high cost of OCR equipment and the willingness and practicability of instituting an intensive forms quality control program. Additionally, a rigid maintenance program must be initiated over the OCR equipment itself and the equipment (typewriters or high-speed printers) used to prepare input to the OCR equipment. Accounting controls such as

check digits and hash totals should be used as much as necessary to ensure accurate conversion of the input data by the OCR equipment. Consideration should also be given to the availability of backup equipment in the event of long-term downtime.

With regard to applications, I believe that a very high volume of alphanumeric input data such as names and addresses is needed to justify OCR equipment unless equipment costs can be brought down to more nearly the level of other input devices or unless a

substantial amount of turnaround documents are used as input to the OCR equipment.

Also, even though any of the above criteria for use of OCR equipment may be absent in a given situation, a real shortage of competent keypunch personnel in times of rising input volumes may force a company to consider OCR, not because it is economically desirable, but because of a need to process its increasing workload on a timely basis thereby avoiding huge backlogs due to lack of personnel.

721343

The Fallibility of Interviewing

By Charles S. Mezger

In this article the author discusses some of the problems of obtaining information through interviewing large groups of people. He suggests a number of principles for improving the effectiveness of this process.

Perhaps the hardest decision an investigative organization has to make is whether or not to investigate large groups of people. Although man has managed to comprehend all sorts of profound technical and theoretical concepts, even a cursory glance at the world situation seems to indicate that man has not yet learned to understand man.

When an investigative organization (e.g., GAO) has deemed it necessary to appraise the attitudes, opinions, and beliefs of certain groups of people in order to evaluate the effectiveness of certain programs, it must invariably find a method of measuring these views. Intuition and expert counseling are two possible methods of estimating group viewpoints, but the most logical approach is to conduct a survey.

One type of survey that has received increased attention in recent years is the personal interview. Interviewing, compared with indirect types of surveys (i.e., direct mailing and telephoning), is generally regarded as the best alternative to follow. The question arises, though, as to whether interviewing is

good enough or merely the least of three evils.

If all the answers to a problem were known, then there would be no problem and thus no need to conduct an investigation. Unfortunately, this is rarely the case. The lack of total information means that uncertainty must exist. The function of a survey is to aid in reducing this uncertainty. Uncertainty can never be eliminated entirely, but it can be reduced significantly by using the scientific method.

Uncertainty is reduced by discovering the truth, and, as any researcher knows, this is no easy task. The road to truth can be a long thoroughfare, interspaced with numerous tollbooths; one should not undertake the journey without adequate time and money. The road contains myriad branches, diversions, and obstacles designed to detour, sidetrack, and halt even the wisest of investigators. Those who fail to follow this "yellow brick" road properly are rewarded with nothing more than an inaccurate explanation, or what Shakespeare referred to as the "seeming

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truth." Anyone who contemplates this arduous undertaking must continually remind himself that evidence of truth does not constitute proof, for the road may be circular; when the journey has been completed, the investigator is no closer to the truth than he was many days and many dollars ago. Again, the journey to truth is made considerably easier and surer by adopting the scientific method.

No scientist would dream of launching a missile without some system of internal guidance. Why, then, should an investigator attempt to study large groups of people without his own system of built-in guidance (viz, adherence to the scientific method)? The answer is, simply, that he should not. It is imperative that an investigator comply with the principles of the scientific method.

An aura of validity, objectivity, and honesty pervades any study that is said to be done in a scientific manner. One assumes that truth has been reached, but this is not always the case. Regardless of the connotations of purity and the raised eyebrows encountered when a study is questioned, there is every reason to be skeptical of the results of examinations concerning the views of a group. The mystique surrounding such studies is challenged for this reason—humans have the most fascinating and innate talent for making a study unscientific.

The Scientific Method

Science is man's reaction to a hostile environment and the scientific method his tool for taming this environment. The scientific method has been mentioned frequently in this paper, but

what exactly is it? It might be termed the only legitimate procedure to be followed in pursuing the truth. The scientific method stresses the importance of exercising extreme care and diligence in the gathering, recording, and analyzing of data. In addition, it means that relationships among bits of information, and the conclusions which follow, must be logically and empirically sound. The mere gathering and tabulation of data does not constitute the scientific method. Objectivity on the part of the investigator, accuracy of the measurement process, and exhaustiveness in the extent of the study, constitute the essence of the scientific method.

Objectivity is naturally missing when an investigator clings to a preconceived opinion, ignoring any conflicting data. Adoption of the scientific method implies that conflicting data is not to be ignored and that a continuing search is to be advanced for additional evidence to support or refute existing conclusions. One who utilizes the scientific method recognizes that conclusions are ephemeral in nature. It would be absurd for a researcher of group views to endeavor to seek the ultimate truth, for, as Melville so aptly put it, "even truth itself decays * * *."

Necessity prompts the adoption of the scientific method; otherwise, different researchers would emerge with different findings and conclusions. The scientific method is utilized in order to inject credence and trust into the investigative process.

Project Steps

When planning a research project, it is necessary to anticipate, and plan for, all the steps which must be under-

taken. The survey is launched by a formal declaration of the problem. After the sources of information have been determined and the data collection forms prepared, the investigator proceeds with the design of the sample. Data is then collected, edited, tabulated, and analyzed. The survey is usually consummated with the preparation of the report.

Interviewing is generally regarded as the actual collection of data in the field; however, it is important to remember that each step in the research project is interrelated with every other step. Because each step is a source of error, the worth of interviewing is dependent upon the accuracy of the previous steps. Naturally, the way in which the interviewing process is performed determines (together with the previous steps) the value of those steps which follow.

Conceptual Framework

The concept of interviewing that was just presented is somewhat narrow in its outlook. I suggest that we differentiate between interviewing and the interviewing process. Rather than to perceive interviewing as being synonymous with data collection, it would be better to think of it as encompassing all the steps in the research project, the interviewing process being one of those steps. Interviewing, then, may be depicted as being the hub of a wheel, with the various steps representing the spokes. This new notion of interviewing will make it easier to conceptualize the difficulties encountered.

Distortion

The initial distortion in the survey project arises because the investigator does not define the problem precisely. An ill-defined problem, and the irrevocable quagmire that follows, results in unnecessary data being collected and essential information being lost. Once a mistake has been made in the formulation of the problem, the project is doomed to failure; nothing can be done to rectify the error.

Distortion will obviously ensue from an adoption of the "engineering" concept. This approach is employed when the investigator says to those responsible for the study. "Tell me what you want me to find." Objectivity, a basic element of the scientific method, is hopelessly decimated by the investigator who sets forth to prove a predetermined conclusion. Truth may well be the purpose of interviewing, but not always of interviewers.

The investigator himself plays a part in perverting the purity of the data. His defect is an inherent one—he is a human being. Man is an imperfect creature; therefore, he possesses the capability of being prejudiced, narrow-minded, and intellectually dishonest. Man's imperfection also implies the likelihood of blunder. Although he may try, the investigator cannot view society from an ivory tower, for he is a member of that society. The investigator is further hampered because his measuring device, the personal interview, is a subjective one. The paradox is amusing: subjective man employs a subjective tool in an attempt to achieve objectivity.

The very nature of the interviewing process makes an application of the

scientific approach extremely difficult. The physical scientist is able to control and reproduce exact conditions in his tests, but the investigator of group views is afforded no such luxury. Exact conditions can never be duplicated. The survey occurs at a particular point in time, but attitudes, opinions, and beliefs are constantly changing. Even if the interviewing process obtains completely accurate data (which is not very likely), this data will apply only to an instant in time. We are taking a snapshot, not a motion picture.

The interviewee will prove to be a bit more challenging than Pavlov's dog, although some questions may elicit the same type of response (e.g., Do you hate your mother?). The typical group of respondents will be composed of individuals with a variety of socioeconomic, educational, and religious backgrounds. This motley crew is capable of giving almost any conceivable response, although we may dismiss the possibility of salivation. Heterogeneity in the group is matched by differences within the individual. The wisdom, experience, mood, and health of every individual are susceptible to change.

Sampling Difficulties

The sampling process is a constant cause of concern to the investigator, for it is by no means infallible. We assume that the sampling design (e.g., stratification) and the sampling method (e.g., random selection) are scientifically acceptable, but the possibility of error still exists. The recourse to sampling is taken because time and/or money restraints preclude the investigator from taking a complete census.

He hopes that, by using sampling theory, he will be able to obtain a mirror image of the population.

The decision to sample implies a willingness to accept the risk that a "wrong" sample may be chosen. All samples do not lead to the same estimate of the population value unless all the elements of the population are identical. The innate risk remains that, as long as the investigator works with less than the whole, misleading data may be collected. The only way to entirely eliminate this problem is not to sample. Statisticians have learned to be timid fellows though, and get around this problem by making confidence estimates. Rather than predicting that X percent of the people like Ike, they will report that between W and Y percent feel this way.

While the sampling theory is mathematically defensible, it is administered by humans, and therein lies its weakness. For example, the investigator constructs a list of the population, which may or may not be representative, and the sample is selected from this list. It is a trick, indeed, to generate a representative sample from an unrepresentative list, but a frustrated investigator is likely to try anything.

Sampling is of little value if incorrect information is obtained. Its worth is also lessened if a significant number of individuals either refuse to answer or cannot be located.

The questionnaire itself may cause distortion in the study. The formulation of the problem determines what information should be collected; the gathering of extraneous data should be avoided. Ambiguous, leading, and personal questions will cause inac-

curate data to be collected. In essence, a lackadaisical approach to the wording of the questionnaire will refute the purpose of the study.

The Whispering Effect

While it is true that children learn by watching adults, it is equally true that adults learn by watching children. Distortion can be explained by describing an amusing game that children play. The youngsters arrange themselves in a circle, and one of the group whispers a sentence to the person next to him. This fellow then whispers his version of the sentence to the next person, and the process continues until everyone has been included. The child who last heard the message then repeats what he thinks he heard. The final version of the sentence will, inevitably, be different from the original one. More important, the greater the number of participants, the greater the probability that the beginning and ending versions will differ. The same phenomenon is found in survey projects. This "whispering effect" results in a change in meaning at each level of human interaction. It occurs because there is a continual communication gap.

There are many phases of human interaction in the survey project. The designer relates his plan and purpose to the interviewer, who, in turn, sets out to question the interviewee. The collected information is then passed to the editor and on to a tabulator. An interpreter receives the product of the tabulator's work and, after analyzing it, presents his findings to those responsible for the study. A report is then prepared and offered to the reader. The

greater the number of individuals involved, the greater is the possibility of distortion.

The interviewer-interviewee relationship may be used to illustrate the barriers to effective communication. Neither the interviewer nor the interviewee can interpret a statement properly if it has not been clearly heard. A garbled message, background noise, and faulty hearing ability will prevent an intended message from being audible. Because the English language is not exact, certain words and phrases can cause a statement to be interpreted differently. The inflection with which words are spoken and the use of facial expressions and hand gestures may cause varying interpretations of the same statement. Effective communication will also depend on the concept that the interviewer and interviewee have of each other, and the basic intelligence that each possesses.

The reply given by the interviewee may not always be accurate, even if he does understand the question. Replies will depend, in part, on the respondent's memory. In addition, embarrassing or highly personal questions may cause the respondent to provide answers that he thinks he "ought" to give.

The answer recorded by the interviewer may be inaccurate. He is faced with the task of trying to interpret what the interviewee "really means." Furthermore, there is the constant danger that the interviewer will make an honest mistake in recording the answer, or worse yet, deliberately falsify the reply.

The tabulation and analysis of collected data are frustrating tasks, for it

is here that the past inaccuracies are consolidated. The problem of what to do with illegible, logically inconsistent, unanswered, and meaningless responses is one that has always plagued investigators. Attempting to fit square pegs into round holes is a trying experience, but the investigator, being resourceful, has learned to whittle.

The Dilemma

The investigator must realize that his efforts will be hampered by this communication gap, in addition to the reduction in validity due to a lack of adherence to the scientific method. Even if the scientific method is rigidly followed, the communication gap would still exist. It is inherent, because humans are involved. The dilemma of interviewing is now apparent. Reducing the levels of human interaction would decrease the impact of the communication gap (ideally, the best situation is to have one person do the study) but would increase the lack of adherence to the scientific method, because objectivity would be threatened. Adding levels of human interaction would increase the adherence to the scientific method but would increase the impact of the communication gap simultaneously.

It has not been my aim to use these pages for a mockery of homo sapiens, but I do suggest that we swallow our pride and admit to one inescapable fact: because man is an imperfect creature, it is inconceivable that he would be able to create perfection. Any survey project will, therefore, have its flaws. Interviewing cannot be expected to measure group views exactly, but I do believe that it is capable of providing valid

approximations of the truth. To wish for more from an imperfect process would be blasphemous.

Recommendations

Government expenditures, particularly in the area of health, education, and welfare, have risen tremendously in the past decade. The present interest in social reform and the growing chance of an end to the war in Vietnam augment the possibility of even further increases within the next decade. It is therefore expected that the General Accounting Office will be called upon more and more to evaluate the effectiveness of these domestic programs. No evaluation of program effectiveness should overlook the recipients of the intended benefits. With mass interviewing, we will have an added tool with which to evaluate these programs. Adherence to the following principles should make the task easier and more effective.

- There must be an awareness of the difficulties that will be encountered in mass interviewing. Such an awareness serves to combat the problems that the lack of adherence to the scientific method and the communication gap pose.
- Evidence gained through mass interviewing should be used to complement other forms of evidence, and never be permitted to stand alone.
- Questionnaires should never be based on a minimum sample size. Instead, a larger sample size should be used as a reserve to counter the drain on usable questionnaires that will occur.

FALLIBILITY OF INTERVIEWING

- The survey project should not be undertaken without sufficient time and adequate financial resources.
- Training sessions should be used to instruct employees of the purposes and methods of the project.

I strongly urge that, when mass interviewing is desired, it be adminis-

tered by a small and highly trained staff of individuals within the General Accounting Office. By doing so, not only will we lessen the distortion caused by the lack of adherence to the scientific method and by the communication gap, but also, we will know from firsthand experience the strengths and weaknesses of our survey.

A Look at Harvard's Program for Management Development

721344

By Albert L. Braddock

This article is based on the author's experience and impressions while attending the 15th session of Harvard's Program for Management Development during the period January 28 through May 16, 1968.

Since 1960 the General Accounting Office has sent more than 30 of its supervisory personnel to Harvard's Program for Management Development (PMD). Consequently, there are probably many in our ranks who would like to know something about the program, including some who have aspirations to be graduates of PMD. This article, which will present a bird's-eye view of the program, is therefore intended to satisfy the curiosity of some and to whet the appetite of others.

Program Purpose

PMD is an executive development program conducted by the Harvard University Graduate School of Business Administration, Boston, Mass. The 16-week program is designed for young men currently filling responsible positions at the operating level who have demonstrated by their performance that they are potential top-echelon managers. Its stated purpose is to

equip young managers to handle their day-to-day assignments better and to prepare them to assume increasing responsibility.

The specific objectives of the program are: to broaden understanding of the basics of business—production, marketing, control, statistics and accounting, finance, and human behavior in the organization—with special attention given to their interrelationships; to familiarize developing managers with the techniques and tools of modern management; to heighten appreciation of organizational realities and the importance of interpersonal relations in a business environment; to develop the confidence that comes with broadened perspective and successful experiences in the program; to explore the implications of unfolding events in both national and international affairs to the profitable and meaningful operation of business; to inspire interest in management education as a continuing

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process; and to develop lasting patterns of analytical thinking in decision-making.

Initial Entrance

Members of PMD arrive at Harvard on Sunday afternoon and are met individually by an administrative director who welcomes them to Harvard, gives them a room key, and directs them to the appropriate section of the dormitory.

Upon entering his assigned room, the member finds a simple wooden desk and chair, a plastic-covered "easy" chair, a hospital-type single bed, a small chest of drawers, and a small wardrobe attached to one of the walls. In some sections of the dormitory, the furniture is arranged so that two members share one room for sleeping and one room for sitting or study. Six to ten members in adjoining rooms constitute one of the subgroups of PMD identified as a room group. Assignments to room groups are made so as to provide, as far as possible, representation from each segment of business management, such as finance, marketing, and manufacturing.

At 5 p.m. on the day of arrival (Sunday), a reception is held in the dormitory lounge where PMD members meet the faculty. Following the reception, the members join the faculty for dinner at which time the faculty chairman formally welcomes all PMD members.

After dinner the members return to their rooms for study. Each member's desk is covered by several stacks of books and case materials which represent only a small portion of the study materials used during the program. A class assignment schedule is included

with the materials and each member is expected to study the assignment and be prepared to participate in classroom discussions. About 4 hours' preparation are required for each day's classes.

A Full Day of Activity

The first full day of the program begins on Monday with breakfast at 7 a.m. By previous assignment, the class has been divided into about 12 discussion groups of from six to 12 members each. The assignments were made so as to provide representation from each segment of business management, and assignments are changed biweekly. At 8 a.m. each discussion group meets for 1 hour to discuss each of the assignments to be covered during the day. At 9:15 a.m. the entire class meets to discuss the first assignment. At 10:30 a.m. the class recesses for coffee. At 11 a.m. the entire class meets to discuss the second assignment, and at 12:15 p.m. the lunch period begins. At 1:30 p.m. the class meets to discuss the third assignment, and at 2:45 p.m. the class is dismissed.

Facilities are available for individual and group sports activities, which are utilized by many members from 3 to 6 p.m. Frequently, however, this time period is utilized for special classes, for laboratory work in computer application, for addresses by high-ranking officials of business, industry, and Government, and for local field trips. Dinner is provided for all members from 6 to 8 p.m., and after dinner the members return to their rooms to study and prepare assignments for the following day. Classes are held 6 days each week.

Teaching Method

The case method of teaching, for which Harvard is famous, is followed for PMD. Under this method a booklet dealing with the subject matter involved, such as finance, marketing, and logistics, and containing such pertinent data about a particular business as its origin, growth history, present condition, and future plans, is given to each member for study. The member is supposed to study thoroughly the data in the booklet, utilize reference material available in the library, relate his personal experience to the subject matter being studied, and thereby formulate a management analysis of the situation which he will be prepared to present to the entire class the following day. The analysis may include such things as significant accomplishments as well as mistakes made to date, present problems which should be solved, and recommendations for future action.

When the class meets to discuss the case, it is rarely necessary for the professor to call upon an individual to recite, since several members are usually primed with enthusiasm for their views and desire to present them. After the first member has ended his presentation, there are usually several members who are ready to challenge the presentation and advance their views which are quite different from the one presented and from those of the others. The professor's role is usually that of a moderator except that for some complex cases he will offer suggestions and explanations.

At an early stage in the program, each member realizes that many alternative solutions exist for any particular problem; he therefore learns to

delete from his presentation statements which imply that his analysis or recommendation is the only correct one.

Program Content

The course material is divided into the areas of general management, finance, quantitative analysis, issues in business, and human behavior in organizations. "General management" is the core of the program and it deals primarily with problems in marketing, production, logistics, and management strategies. "Finance" deals with the acquisition of funds for working capital and longrun investment with evaluations of financial performance. "Quantitative analysis" includes financial and cost accounting, direct costing and break-even analysis, appraisal of investment decisions using present value approach, and business decisions under conditions of uncertainty. "Issues in business" deals primarily with problems of labor-management relations and with national income accounts and national economic policies.

"Human behavior in organizations" applies relevant concepts from the behavioral sciences to business situations and emphasizes useful ways of understanding another person and communicating with him effectively. One highlight of the program is a 3-day laboratory session on human behavior during which the members, divided into small groups of about 10 men each, practice the art of interpersonal communication.

Program Benefits

PMD is structured so that a major part of the learning process results from exposure to other members. In fact, the most dynamic part of the program is each member's contribution of

experience, personality, and overall perspective. Each member is thus an important and distinct factor in the whole educational program, and particularly so in the discussion and classroom groups. Since a member's absence from class not only loses something of value for him, but also reduces the effectiveness of the classes and events for other participants, the graduate school sets high standards of full and regular attendance of participants at all classes and officially scheduled events.

PMD is directed primarily toward the development of managers for business and industry, as opposed to the Government; however, there are many benefits which accrue to GAO personnel

who attend PMD. Two of the most important benefits, in the writer's opinion, are a better understanding of human behavior and a more comprehensive understanding of how business decisions are made.

EDITOR'S NOTE:

In addition to the program described in this article, GAO also assigns staff members to attend other university management development programs such as Harvard's Advanced Management Program (for more senior personnel) and those presented at Michigan, Stanford, Cornell, Pittsburgh, and Texas. GAO staff members also attend the National War College, the Industrial College of the Armed Forces, and the Department of State's Foreign Service Institute.

FRANK H. WEITZEL
RETIRES

GAO CAREER MAN
1923 - 1969

ASSISTANT COMPTROLLER GENERAL
OF THE UNITED STATES

October 12, 1953 - January 17, 1969

ACTING COMPTROLLER GENERAL
OF THE UNITED STATES

May 1, 1954 - December 1954
August 1, 1965 - March 8, 1966



FRANK H. WEITZEL RETIRES

Frank H. Weitzel completed on January 17, 1969, a long, honorable, and distinguished career in the service of the U.S. General Accounting Office, when his 15-year term as Assistant Comptroller General of the United States came to an end.

Mr. Weitzel served the Office with a degree of competence and dedication over a period of 45 years that will probably remain unmatched in the history of the General Accounting Office. His service was performed under every Comptroller General that has headed the Office since it was created by the Budget and Accounting Act of 1921—McCarl, Elliott, Brown, Warren, Campbell, and Staats.

Over this span of time, Mr. Weitzel's participation in and his contributions to the transformation of GAO to its current stature as a valued and effective arm of the Congress of the United States will leave a lasting and indelible mark on the Office.

Some Significant Events in Mr. Weitzel's Career

- 1923.—At age 16, became messenger in Claims Division. Salary: \$14 a week.
- 1924.—Resigned to complete high school.
- 1925–26.—Messenger in Claims Division in summers.
- 1927.—Reinstated for duty, serving GAO continuously from that time forward.
- 1931.—Graduated, with highest distinction, from George Washington University, having attended classes and lectures mostly at night. Received A.B. degree.
- 1934.—Married Hester Bogardus of Washington, D.C., and a native of Mansfield, Ohio. Mrs. Weitzel was an employee of GAO from 1923 to 1936.
- 1935.—Graduated, with distinction, from George Washington University Law School, having attended classes and lectures at night. Received LL.B. degree.
- 1935.—Admitted to the District of Columbia Court of Appeals.
- 1936.—Promoted through transfer from the Claims Division to the Office of the General Counsel as an attorney.
- 1942.—Assigned to the Office of the Comptroller General on legal, organizational, and procedural problems.
- 1945.—Designated Assistant to the Comptroller General, Lindsay C. Warren, in charge of legislative program and interagency relations.
- 1953.—Appointed by President Eisenhower, during a recess of the Senate, as Assistant Comptroller General, following the death of Frank L. Yates, incumbent.
- 1954.—Appointed by the President and confirmed by the Senate to a 15-year term as Assistant Comptroller General. He was sworn into office by the late Judge James R. Kirkland of the U.S. District Court, District of Columbia.
- 1954.—Acted as Comptroller General on the retirement of Comptroller General Warren from May until December, when Joseph Campbell became Comptroller General.
- 1965.—Again acted as Comptroller General on the retirement of Mr.

Campbell from July until March 1966, when Elmer B. Staats became Comptroller General.

1968.—Received the Comptroller General's Award for "an exemplary career of service to the GAO, the Congress and the Nation."

1969.—Completed on January 17 term of office as Assistant Comptroller General of the United States.

Mr. Weitzel is a member of the bar of the District Court of the United States for the District of Columbia, U.S. Court of Appeals for the District of Columbia, and Supreme Court of the United States.

He is a member of the American Bar Association, the Federal Bar Association, and the Federal Government Accountants Association; a trustee of the American Cancer Society, District of Columbia Division; trustee of the William A. Jump Foundation; elder in Georgetown Presbyterian Church.

From 1959 to 1965, he served as an alumni trustee for George Washington University. In June 1965, he received the Federal Government Accountants Association Award for distinguished leadership in improving financial management in the Federal Government.

And in October 1968, not long before the end of his term, he was designated as an Honorary Regional Manager of the General Accounting Office by unanimous vote of the present regional managers.

With such a long period of time to consider in assessing Mr. Weitzel's career, it is feasible here to do little more than register a few highlights which symbolize some of the significant changes in the functioning of the Gen-

eral Accounting Office in which he was a key participant.

Audit Control Over Government Corporations

Legislation enacted in 1945, first the act of February 24, 1945, and later the Government Corporation Control Act, brought all Government corporations under GAO audit surveillance for the first time. These acts provided for annual audits of the corporations in accordance with the principles and procedures applicable to commercial corporate transactions. Comptroller General Lindsay C. Warren characterized this legislation as "the most forward-looking and outstanding measure in its field since the enactment of the Budget and Accounting Act of 1921."

The importance of the measures taken in 1945 to bring Federal corporations under more effective congressional control is underscored by the fact that at the time there were over 100 such organizations with assets totalling about \$30 billion.

Mr. Weitzel played a key role for GAO in the enactment of these laws. He consulted with cognizant congressional committees and their staffs and with individual Members of Congress on the legislation, participated in the drafting of the bills, and assisted the Comptroller General in presenting formal testimony before the responsible congressional committees.

A very important contribution by Mr. Weitzel at this time was the completion of the *Reference Manual of Government Corporations*, the preparation of which he supervised. This manual, published as Senate Document No. 86

(79 Cong., 1st sess.), provided the Congress, other Government agencies, and the public with a needed compilation of information about the creation, organization, location, activities, finances, accounting requirements, and audit status of all Government corporations.

Joint Financial Management Improvement Program

Mr. Weitzel played a leading part for GAO in the establishment early in 1949 of the Joint Program for Improving Accounting in the Federal Government. This program was an outgrowth of the mutual interest of the Bureau of the Budget, the Treasury Department, and the General Accounting Office in devising better machinery for improving the fiscal and accounting operations of the Federal Government. This interest was supplemented by the expressed concern of the Senate Committee on Government Operations (then called the Committee on Expenditures in Executive Departments) in the need for such improvement.

Joint discussions of this subject by representatives of the three central fiscal agencies and the committee began early in 1947. The principal GAO representatives were Frank L. Yates, Assistant Comptroller General, and Frank Weitzel, Assistant to the Comptroller General. The Treasury representative was Edward F. Bartelt, Fiscal Assistant Secretary, and the Bureau of the Budget was represented by Fred Lawton, Assistant Director.

In 1959 this program was redesignated as the Joint Financial Management Improvement Program to more

accurately symbolize the scope of its operation in the Federal agencies.

The history of this program, now 20 years old, was reviewed briefly in the Winter 1969 issue of the *Review*.

Mr. Weitzel has been an ardent supporter of the program, its concepts and its objectives, throughout the years since its inception.

Legislative Implementation of First Hoover Commission Recommendations

The far-reaching studies of the first Hoover Commission in 1947-1949 identified numerous needed changes in the Government's financial control procedures. In many cases the Commission's recommendations required legislative action and several of them had significant impact on the General Accounting Office. Mr. Weitzel was in the forefront in providing advice and assistance to the Congress and to the agencies concerned with respect to these laws, including the following:

National Security Act Amendments of 1949

This law, which established the present Department of Defense, also included provisions intended to promote financial management improvement in the Defense Establishment. It provided comptrollers in the Department of Defense and the military services who were to be responsible for budgeting, accounting, progress and statistical reporting, and internal auditing, and authorized a number of specific budgetary and accounting changes.

This portion of the law grew out of the Hoover Commission conclusion that

the military budget system had broken down. The act was of importance to GAO in establishing statutory recognition of the need for improved accounting and financial control machinery in the Department of Defense and thereby providing an improved basis for subsequent GAO cooperative development and financial management improvement work.

Federal Property and Administrative Services Act of 1949

This act, which created the present General Services Administration, was a very comprehensive law which brought about a major reorganization of the supply and housekeeping functions of the Federal Government. It incorporated recommendations of the Hoover Commission for consolidation of these functions in one agency and for other changes designed to increase efficiency and economy.

Of especial concern to the General Accounting Office were the property accounting and auditing provisions. This was the first act which empowered the Comptroller General to prescribe property accounting principles and standards for Federal agencies and to cooperate with executive agencies in developing their property accounting systems.

The act also contained important new audit authority and responsibility requiring the GAO to audit all types of property accounts and transactions at the locations where property or records were kept. Further, this act called for a GAO "evaluation of the effectiveness of internal controls and audits, and a general audit of the discharge of the duty to account for property."

Post Office Department Financial Control Act of 1950

This act gave effect to Hoover Commission recommendations for modernized financial controls relating to the Post Office Department. It was approved August 17, 1950, and provided such major changes affecting GAO operations as:

- Transferring to the department the accounting, reporting and preaudit functions being performed by GAO.
- Requiring the Postmaster General to establish and maintain adequate and efficient systems of accounting and internal control in conformity with accounting principles and standards prescribed by the Comptroller General.
- Providing for GAO cooperation in development of the department's accounting system and for GAO approval when such system is deemed to be in conformity with prescribed principles and standards.
- Comprehensive site auditing of Post Office Department affairs by GAO, giving "due regard to the adequacy of the system of accounts and internal control * * * and to generally accepted principles of auditing."

Budget and Accounting Procedures Act of 1950

As Assistant to the Comptroller General, Frank Weitzel again played a strong role for GAO when this legislation was being considered. The act itself was of particular importance to GAO because it modernized and clarified the

authorities and responsibilities of the Comptroller General for accounting and auditing in the Federal agencies generally.

When President Truman signed the act into law on September 12, 1950, he noted that its accounting and auditing provisions laid the foundation for far-reaching improvement and simplification. He pointed out that "For the first time, clear-cut legislation is provided which nails down responsibility for accounting, auditing, and financial reporting in the Government."

One of the controversies during the consideration of this legislation was the proposal of the first Hoover Commission to divest the Comptroller General of almost all responsibility with respect to executive agency accounting systems and to create an Accountant General in the Treasury Department empowered to prescribe accounting methods and procedures. Frank Weitzel was at his best as a witness when he testified at length on the GAO views as to the lack of merit in this proposal, the advantages of the Joint Accounting Improvement Program as a medium for obtaining desired improvements, and the need for GAO to retain some authority in the Federal accounting function. The Committees on Expenditures in the Executive Departments of both Houses endorsed this view. Both reported that the "long-established policy of Congress" under which the Comptroller General as an agent of the Congress prescribes accounting requirements was "an essential legislative control over public financial transactions, and must be held inviolate."

Nomination as Assistant Comptroller General

In connection with Frank Weitzel's nomination as Assistant Comptroller General, Lindsay C. Warren, then Comptroller General, sent the following letter on January 14, 1954, to the chairman of the Senate Committee on Government Operations:

I understand the nomination by the President of Mr. Frank H. Weitzel to be Assistant Comptroller General of the United States is pending before your committee.

Mr. Weitzel's appointment has my wholehearted approval. He has served in the General Accounting Office for more than 25 years, the last 11 of which have been in my immediate office. He is steeped in the tradition of the General Accounting Office as the agency of the Congress and a part of the legislative branch of the Government. I appointed Mr. Weitzel in 1945 as my assistant in charge of the legislative program of the Office. In this position he has constantly dealt with committees of both Houses of the Congress, especially the Government Operations Committees. He has worked on much important legislation, including, as your committee knows, the Federal Property and Administrative Services Act of 1949 and the Budget and Accounting Procedures Act of 1950.

Mr. Weitzel is well and favorably known not only by the majority of leaders in the Congress, but throughout the Government. On many occasions he has been my direct representative in dealing with members of the Cabinet and agency heads. He has taken a leading part in the joint accounting improvement program being conducted by the General Accounting Office with the Treasury Department and the Bureau of the Budget.

A large part of the duties of the Assistant Comptroller General are of a legal nature, including the rendition of decisions binding on the executive branch. Mr. Weitzel holds the degrees of bachelor of arts with highest distinction and bachelor of laws with distinction from the George Washington University. He is a member of the Supreme Court bar, and a lawyer of outstanding ability. He has a



Frank H. Weitzel takes oath of office as Assistant Comptroller General of the United States on January 21, 1954. The oath was administered by the Honorable James R. Kirkland, Judge, U.S. District Court for the District of Columbia. Comptroller General Lindsay C. Warren looks on.

great love and respect for the Constitution and the law. In character and integrity he is without a peer.

Mr. Weitzel is active in the religious life of Washington. I regard him as one of the finest Christian gentlemen I have ever known.

Contribution to GAO Accounting and Auditing Functions

Although a lawyer by education and profession, Frank Weitzel also concerned himself deeply with the accounting and auditing functions of the General Accounting Office. He was in the forefront of the changes which accelerated after World War II to mod-

ernize GAO's auditing function from centralized document auditing to comprehensive auditing at the site of Federal agency and contractor operations. He was a strong supporter and advocate of the changes in concept and philosophy that have brought GAO into a position of leadership in the development and application of advanced independent auditing techniques to all phases of management performance.

He has been a strong supporter of the effort to make GAO audit reports increasingly useful as tools for improved congressional surveillance over

executive branch operations and for improvement of these operations.

In the field of Federal accounting, Frank Weitzel has long and persistently endorsed the pattern of primary agency management responsibility for accounting operations within the framework of GAO-prescribed broad principles and standards. He has also been a strong supporter of GAO cooperative help to Federal agencies in modernizing their financial management systems and of the importance of the GAO role in providing joint leadership to the Joint Financial Management Improvement Program. Where others who were involved in these evolutionary changes that have marked the improvement in GAO operations over the past 25 years have come and gone, Frank Weitzel remained not only as a leading exponent of what needed to be done, but an active participant in promoting the needed changes.

For this kind of backing over the years, those now concerned with the accounting and auditing functions of the General Accounting Office have much to be grateful to Mr. Weitzel for.

Congressional Testimonials

Mr. Weitzel was widely known and admired in the Congress. At the time of his retirement, numerous tributes to his competence, integrity, and dedicated service appeared in the Congressional Record. A few excerpts:

John W. McCormack
Speaker of the House of Representatives

Frank Weitzel certainly is one of those who, by hard work and dedicated service and willingness to learn and apply himself, has risen to high rank in the public service. He deserves acclaim because the job he has

done so long and so well is one which only persons of dedication and integrity can do. He has strived constantly to improve the workings of our democracy, to make Government ever more efficient and honest and able to cope with the great problems of contemporary life.

George H. Mahon, Chairman
House Committee on Appropriations

Frank Weitzel epitomized excellence in the public service. In the words of the Prophet Isaiah, he lifted up a standard for others—a standard of excellence in public service. One of his shining characteristics is his unimpeachable integrity; it stands out like a red thread in the linen of his life. Of fair and open mind, willing always to listen, he sought to do what was right.

He has been a great force for good in the management and administration of the laws, especially in those relating to fiscal affairs. He had a heavy hand in drafting some of our milestone fiscal legislation.

William L. Dawson, Chairman
House Committee on Government Operations

I have known, worked with and relied on Frank H. Weitzel for many years. His wise counsel and advice, his unstinting assistance and his devotion to Congress and to the citizens of the United States have been unsurpassed in my experience and observation. His outstanding ability and his uncommon integrity have been widely acclaimed.

* * * * *

What I want to do is express the gratitude of myself and the members of the Committee on Government Operations to Frank Weitzel and to state publicly that we, the Congress, and the Nation will sorely miss his wisdom and his work.

John A. Blatnik, Chairman
Executive and Legislative Reorganization Subcommittee
House Committee on Government Operations

Frank Weitzel has been a pillar of strength in ferreting out waste and inefficiencies in the

vast structure of the Federal Government and bringing these to the attention of the House and Senate. Our Government and the country as a whole have benefited by his great work. He will long be remembered.

Dante B. Fascell, Chairman
Legal and Monetary Affairs Subcommittee
House Committee on Government Operations

The Committee on Government Operations, the House's oversight committee, has been particularly fortunate in having Frank Weitzel to call on for assistance over a wide span of years. He could always be counted on to provide it with accurate data, analysis and the benefit of recommendations based upon his vast experience and his capacity for digging into the heart of problem areas.

* * * * *

When Frank Weitzel was appointed Assistant Comptroller General in 1953, then Comptroller General Lindsay C. Warren applauded President Eisenhower for his selection, saying that the President would "never make a better appointment." That judgment has stood the test of time, for he made that prediction come true by his devotion to duty and effectiveness.

L. H. Fountain, Chairman
Intergovernmental Relations Subcommittee
House Committee on Government Operations

Very few men have equaled the many years of service Frank Weitzel has given to the Nation. Even fewer can approach the almost unparalleled contribution he has made to the promotion of efficiency and economy in the operation of the Federal Government.

Chet Holifield, Chairman
Military Operations Subcommittee
House Committee on Government Operations

It is hard to think of the General Accounting Office without Frank Weitzel. Through his long and dedicated service in the General

Accounting Office, he became an institution in himself. Probably he knows more about that organization than any other living man, and his knowledge of the Government is exceedingly vast, for the General Accounting Office is an agency which concerns itself with all the operations of Government.

* * * * *

Frank Weitzel has counseled with us, has advised us, has argued and sometimes differed with us, but he has always been wise and patient and hard working and a true servant of the Congress without regard to partisan considerations.

After all these years Frank Weitzel deserves a well-earned rest, but I do not like to think of him as retiring from public service and the affairs of Government. His wealth of experience, his intimate knowledge of the workings of Government, his sharp legal mind which has been honed on many problems requiring Comptroller General rulings, his excellent relationships with the Congress—all these should be brought to bear in a continuing productive career.

John S. Monagan, Chairman
Special Studies Subcommittee
House Committee on Government Operations

He has been widely recognized as one of the outstanding Government officials of our time. His brilliant mind has been matched by diligence and devotion.

* * * * *

Frank Weitzel, who probably knows as much about the inner workings of our Government as any man, will be sorely missed. From the superb example of dedicated professionalism which his career represents, we can all take inspiration.

John E. Moss, Chairman
Foreign Operations and Government Information Subcommittee
House Committee on Government Operations

I can think of no more appropriate words to summarize the ability, character, integrity and ideals of this extraordinary gentleman

FRANK H. WEITZEL RETIRES

than those expressed by Comptroller General Lindsay Warren in commenting on his appointment, for the words have proven throughout our close association during the past 15 years to be as true today as they were then:

In ability, character and integrity Frank Weitzel is the peer of any man I know. He is a man of lofty character, great integrity, outstanding ability and high ideals. He is fair, patient, steadfast and unafraid. There is no finer example of the career public servant which he has so brilliantly typified. His appointment has thrilled not only the General Accounting Office but the Government as a whole.

Frank Weitzel's dedicated and inspiring service to his country and this community will not be forgotten.

*Henry S. Reuss, Chairman
Conservation and Natural Resources
Subcommittee*

*House Committee on Government
Operations*

The word "integrity" is used so often that there is always a danger it will sound platitudinous. Yet, I can think of no other word to describe this quality in Frank Weitzel. "Integrity" is a way of life with him. He is a man of unwavering character and real substance.

*Edward P. Boland
Subcommittee on Independent Offices
and Department of Housing and
Urban Development
House Committee on Appropriations*

Mr. Weitzel has testified many times before a subcommittee on which I serve—the Appropriations Committee's Subcommittee on HUD and Independent Offices. In each case I was impressed with his obvious ability, his command of facts and figures relevant to his testimony, his straightforward manner, his efforts to protect the interests of the American taxpayers and the American Government.

His long years of service, furthermore, are in themselves proof of a determination to see a job through despite the inevitable frustra-

tions and distractions which any worthwhile service can expect to encounter in the process of its successful conclusion.

Farewell Reception

On February 7, 1969, a further tribute to Frank Weitzel and his career took place in the form of a reception in the Benjamin Franklin Room of the New State Department Building. Over 800 of his friends and associates were present to greet him and Mrs. Weitzel and to pay homage to him as a person and as a brilliant public servant.

With his longtime associate and currently General Counsel of the General Accounting Office, *Robert F. Keller*, acting as master of ceremonies, oral tributes were paid to Mr. Weitzel during this occasion by:

Herbert Roback, Staff Administrator for Subcommittee on Military Operations, House Government Operations Committee, speaking for Congressman Chet Holifield of California, chairman of the Subcommittee.

James E. Webb, a former Director of the Bureau of the Budget and Administrator, National Aeronautics and Space Administration.

Elmer B. Staats, Comptroller General of the United States.

As a token of friendship and respect, Mr. Weitzel was presented with a color television set during the ceremonies. Also, on behalf of the Federal Government Accountants Association, Nathan Cutler, national president, presented him with a special Association award in the form of a plaque for Exceptional Service in Financial Management. Theodore Motorney of the Civil Divi-



At farewell reception for Mr. Weitzel at the New State Department Building, February 7. From left, Mr. and Mrs. Weitzel's son, William; Frank Weitzel; Hester Weitzel; Mrs. Elmer B. Staats; and Comptroller General Staats.

sion presented a hand-painted portrait of Mr. Weitzel at an earlier day.

In his remarks to his friends assembled at this reception, Mr. Weitzel drew on his inexhaustible memory to recall incidents involving many of those present. Referring to his service under all of the Comptroller Generals, he said:

I consider it my great good fortune to have served long enough to have ended my service under my long time friend and now my three year leader, Elmer Staats, who has done so much to strengthen the GAO since he came. * * *

It all started way back with the Budget and Accounting Act in 1921. Mr. McCarl, our first Comptroller General, had a big job to convert 2,000 treasury auditors into a feeling of being members of an independent agency.

He was very sensitive about our jurisdiction and about our legal problems. * * *

Lindsay Warren came from Congress and he knew what Congress needed in the GAO. He was the man who turned us around and began to get a professional staff in the accounting and auditing area to match the professional staff in the legal area. He began to emphasize our need to report to the Congress. He was also the man who joined with John Snyder and Jimmy Webb in what we called the Joint Accounting Program in those days. * * *

After Lindsay, Mr. Joseph Campbell came along and for ten years he steered us along the same road, increasing our awareness of our need to report to Congress, increasing our professional staff development, recruiting, and training, and increasing our faculty for producing audit reports to the Congress.



Mr. Weitzel learns about a gift color television set from his friends at farewell reception. From left, Robert F. Keller, General Counsel of GAO; Hester Weitzel; Comptroller General Staats; and Mr. Weitzel.

Then we got Elmer Staats and he has really broadened our base. As I said, he's made us even more conscious of our need to serve Congress. * * *

The Mark of Frank Weitzel

There are many ways in which Frank Weitzel will leave his imprint on the General Accounting Office. Perhaps even more important is the admiration of those who were associated with him and his work for those skills and characteristics that set him apart. Who can forget—

His unflinching courtesy in his personal contacts and relationships.

His unmatched memory for recalling events, circumstances, and facts.

His ability to analyze problems and clearly express his views and knowledge about them.

His skill in testifying before congressional committees.

His sense of fairness in dealings with others, in preparing reports and other communications, and in reviewing problems referred to his attention.

His strong sense of dedication and devotion to the work and the functioning of the General Accounting Office. (No lights have burned for longer hours in the GAO Building than those in Frank Weitzel's office.)

His capacity to thoroughly prepare himself for the demanding requirements of his day-to-day work—for congressional hearings, for public speeches, for conferences with Members of Congress and with Federal agency officials, industry representatives, and others.

His ability as a lawyer to understand, interpret, and advise with respect to the vast maze of Federal laws and regulations pertaining to the conduct of the Federal Government's programs and operations.

His enthusiasm for the work of the General Accounting Office and its

place as a necessary and important part of the legislative branch of the U.S. Government.

Since Frank Weitzel served in the General Accounting Office almost since its beginning in 1921, and for a large part of that time in positions of influence, it is difficult to think of GAO without him. While he may not be physically present, he as a person and his works over the years will not be forgotten by those who remain to continue the work of the General Accounting Office.

E. H. Morse, Jr.,
DIRECTOR, OFFICE OF POLICY
AND SPECIAL STUDIES.

Accrual Basis for Federal Revenues and Expenditures

The President's Commission on Budget Concepts recommended in its report in October 1967 that budget revenues and expenditures be reported on the accrual basis instead of the present cash basis. The Commission also suggested that the changeover be made in time for the President's budget for the fiscal year 1971 (to be transmitted in January 1970) to be submitted fully on the accrual basis.

This recommendation was accepted by President Johnson and work has been underway in the Federal agencies toward making the necessary accounting systems changes.

Recently, two very important memorandums on this subject were issued:

- The first by President Nixon on February 22, 1969, makes it clear that he endorses the proposed changeover of the budget to the accrual basis.
- The second, signed jointly by the Secretary of the Treasury, the Director of the Bureau of the Budget, the Chairman of the Council of Economic Advisers, and the Comptroller General and dated March 10, 1969, announces the extending of the changeover timetable from the 1971 budget to the 1972 budget.

Because of the importance of these memorandums to the entire project, they are included in full in this issue of the *Review* for the benefit of all GAO staff members.

PRESIDENTIAL MEMORANDUM ON ACCRUAL ACCOUNTING

THE WHITE HOUSE

WASHINGTON

February 22, 1969.

Memorandum for: The Director of the Bureau of the Budget

The Secretary of the Treasury

The Chairman of the Council of Economic Advisers

The accrual basis of accounting has long been recognized as the most appropriate basis for providing a fair disclosure of financial condition and operating results in the private sector of our Nation's business. Since 1956, accrual accounting has been a statutory standard for the Government itself, but one which has been but imperfectly achieved.

A year and a half ago, a bipartisan Presidential Commission on Budget Concepts recommended the adoption of the accrual basis for stating revenues and expenditures of the Government in preparing the budget and reporting on budget results. All three of you, though then private citizens, were associated with the Commission and are thoroughly familiar with its work. Some of the senior members of Congress, most clearly associated with the budget process, were also members of the Commission. Shortly after the Commission reported, the Executive Committee of the American Institute of Certified Public Accountants adopted a resolution commending the conceptual changes recommended by the Commission, and urging their prompt adoption.

Since that time the Bureau of the Budget and the Treasury Department have been working with the General Accounting Office to get all departments and agencies of the Government into a position of readiness to convert to the accrual basis, and to execute a trial or "pilot" accrual reporting operation.

I hereby reaffirm the objective of placing our budgets and financial reports on the accrual basis recommended by the President's Commission. Please continue vigorous joint effort with the Comptroller General of the United States to that end. I am expecting the heads of the various departments and agencies to give their personal attention toward achieving this objective at the earliest practicable date, but not later than the end of this fiscal year, so that the conversion can be made effective with the budget to be transmitted to Congress in January 1971.

Please report to me, from time to time, on the progress that is being made.



CENTRAL AGENCY MEMORANDUM ON ACCRUAL ACCOUNTING

SECRETARY OF THE TREASURY
DIRECTOR OF THE BUREAU OF THE BUDGET
CHAIRMAN OF THE COUNCIL OF ECONOMIC ADVISERS
COMPTROLLER GENERAL OF THE UNITED STATES

March 10, 1969

TO HEADS OF DEPARTMENTS AND AGENCIES

The President has reaffirmed the importance of going forward promptly with converting the budget and the companion financial reports of the Treasury to the accrual basis recommended by the President's Commission on Budget Concepts in October 1967. A copy of the President's directive on this subject is attached.

Some agencies have made significant progress in developing a readiness for this important change. However, it is now evident that much more remains to be done. Therefore, we cannot achieve the target date recommended by the Budget Commission to move to the accrual basis for estimates and prior year actual data in the President's budget to be submitted next January.

Accordingly, the President has decided that the changeover will be made effective with the budget for 1972 to be submitted in January 1971.

While slippage of one year from the original goal is a practical necessity, it highlights the need for more vigorous action now, in all agencies, to complete the changes necessary to meet the new timetable.

Staff of the three central financial agencies are working together and with the program agencies on this vital matter. Moreover, the Council of Economic Advisers also has an important stake in this change because of its role in analyzing the impact of the Federal sector in the national economy. Interagency study teams have been working on certain problem areas, and there will be further communications from the Budget Director on these matters as necessary. In the near future, the Treasury will be communicating with each agency on its compliance with the required monthly accrual reporting under the current fiscal year "test operation."

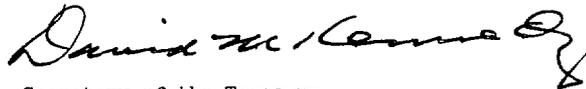
The special monthly reports presently required on the accrual basis must be of such stature, in substance and timeliness, as to enable the Treasury to conduct its central operations for the rest of the current fiscal year and extending through fiscal year 1970 as a comprehensive "pilot" system, producing everything needed for reporting Government-wide results on the accrual basis short of actually publishing the financial statements on that basis during that period. The basic objective

MEMORANDUM ON ACCRUAL ACCOUNTING

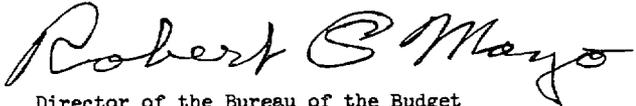
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is to produce from that "pilot" system (a) actual data on accrued revenues and expenditures for fiscal years 1969 and 1970 which will be needed when the financial reports begin to be published on the accrual basis in fiscal 1971; and (b) firm year-end balances of the various asset and liability accounts on the books of the agencies that represent the bridge between the "cash" and "accrual" bases and that are prerequisite to the changeover.

All of this adds up to a major and challenging undertaking. We urge the head of each agency to see that his organization is ready for the changeover soon. The specific requirements have already been promulgated in Bureau of the Budget Bulletin No. 68-10 dated April 26, 1968, Treasury Fiscal Requirements Manual Transmittal Letter No. 18 dated June 20, 1968, and General Accounting Office letter to heads of departments and agencies dated May 4, 1968.



Secretary of the Treasury



Director of the Bureau of the Budget



Chairman of the Council of Economic Advisers



Comptroller General of the United States

Attachment

NEWS and NOTES

GAO Audits an Editorial

Reacting to a number of published misstatements about GAO audit work, the Comptroller General, *Elmer B. Staats*, wrote the following letter to the editor of *The Washington Post* which published it in its issue of February 6, 1969:

Your newspaper has published a series of statements in recent days that would lead readers to believe that the U.S. General Accounting Office directs a grossly disproportionate amount of its audit effort to smaller expenditures of the Federal Government as contrasted with the very large expenditures in the Department of Defense.

The most serious of these misstatements occurs in your editorial of Jan. 30, headed "The Military Spending Sponge." The editorial states in part:

"Why does the General Accounting Office have more men poking into the affairs of Pride, Inc., the local antipoverty agency, than it does poking into the affairs of the aerospace contractors who spend more money before lunch than Pride will ever spend."

GAO's investigation of Youth Pride, Inc., required the equivalent of a full-time effort of 10 auditors for six months, or approximately one-fifth of one per cent of GAO's audit staff. During that same six-month period, approximately 980 auditors were assigned to audits of Defense Department activities, or approximately 40 percent of GAO's staff.

These are correct figures which should be provided to your readers. They should be able to deduce immediately that a very large effort is made continuously by the General Accounting Office to review expenditures in the Department of Defense, including DoD contracts with aerospace contractors.

So that there will be no doubt that your readers are correctly informed as to GAO's services, may I invite your attention to the

following information which appears in our Annual Report for the year ending June 30, 1968.

Of that year's reports to the Congress:

- 73 reviewed U.S. international activities, 21 relating to programs and activities being conducted in Vietnam.

- 554 related to activities of the Department of Defense. Principal defense areas where GAO findings showed a need for improvement in management controls involved supplies; procurement; military and civilian pay and allowances; use of manpower, and transportation.

- 511 reviewed activities of civil departments and agencies of the Executive branch and in the Legislative and Judicial branches.

- 13 concerned Government-wide activities, including a study of the many factors involved in decisions by departments and agencies whether to use contractor-furnished maintenance service for computers—now a \$50 million annual expense— or to do the maintenance themselves.

Actions taken by department and agency officials on our findings have resulted in collections and other savings of hundreds of millions of dollars. Many of our reports are aimed at improving the effectiveness of Government programs and do not result in identifiable financial savings. These result in additional savings nevertheless through the adoption of innumerable GAO recommendations for better management and improved operations throughout the Government.

By law GAO is required to make reviews at the request of the Congress. Our study of Youth Pride, Inc., was undertaken at the direction of the Senate Appropriations Committee. In a review of this type, as in our regular audit work, we make every effort to make certain that our report reflects careful, objective work. The amount of money involved in this case was of less importance than the consideration that our report reflect fairness and thoroughness. We believe this is in Pride's interest as well as the Congress.

Examples of Broad Scope Reviews

The following selection of GAO reports issued to the Congress during calendar year 1968 provides examples of what are sometimes referred to as broad scope reviews. The term has no precise definition within GAO but is generally used to refer to examinations into effectiveness of program performance or into problems of national significance in such terms as cost, widespread existence, size of investment involved, numbers of organizations, persons affected, etc.

Opportunities for American-Flag Ship Operators To Use U.S.-Owned Excess Foreign Currencies and the Effect on the Balance-of-Payments and Budget Deficits, Maritime Administration, Department of Commerce, B-146749, January 11, 1968.

As a result of this report, the Bureau of the Budget highlighted the action taken by the agency and requested all other Government agencies to make specific efforts to identify and exploit similar opportunities existing in their programs.

Survey of Use by Federal Agencies of the Discounting Technique in Evaluating Future Programs, B-162719, January 29, 1968.

A Government-wide survey of 23 Federal agencies.

Inquiry Into Practices Followed by Department of Defense Components in Acquiring and Installing New ADP Equipment for Use in Computerized Management Systems, B-163074, March 13, 1968.

Recommends that the Department of Defense develop an overall plan that will provide better control over the

planning, development, and implementation of management systems within its constituent departments and agencies.

Maintenance of ADP Equipment in the Federal Government, B-115369, April 3, 1968.

A Government-wide review of costs and operating considerations under both contractual and in-house maintenance programs.

Limited Success of Investor-Sponsor Cooperative Housing Program, Federal Housing Administration, Department of Housing and Urban Development, B-114860, April 11, 1968.

Suggests that the Congress may wish to consider revising the program to reduce the Government's risk.

Administration of Project Mohole by the National Science Foundation, B-148565, April 23, 1968.

Suggests an approach to major research and development projects which involve totally new or exploratory concepts whereby they would be conducted in a number of sequential phases permitting periodic reevaluation.

Opportunity To Improve the U.S. Balance-of-Payments Through an Increased Agricultural Barter Program, B-163536, May 29, 1968.

Points out balance-of-payments advantages through relaxation of barter constraints.

Proposed Revision to the Internal Revenue Code Governing Interest Payments on Certain Types of Federal Income Tax Refunds, Internal Revenue Service, Department of the Treasury, B-137762, September 19, 1968.

Suggests that Congress may wish to consider amending the law to prevent taxpayers who claim refunds subsequent to filing their income tax returns from receiving a consideration, in the form of interest, not accorded to taxpayers who claim refunds at the time they file their returns.

Increased Costs to the Government Attributed to Leasing Rather Than Purchasing Land and Buildings by Department of Defense Contractors, B-156818, October 23, 1968.

Concludes that it is appropriate to consider changing ASPRs to make it more attractive for contractors to adopt the most economical method of acquiring facilities.

Cost Reductions Obtainable by Improving the Management of Maintenance of Commercial Vehicles, Department of Defense. B-133244, December 3, 1968.

Recommends that the military departments compile more complete and reliable maintenance data for management action involving approximately 95,000 commercially designed vehicles in use in the United States.

A Congressman's View of GAO Work

In introducing H.R. 4806 in the 91st Congress, which provides for increasing the number of supergrade positions in the General Accounting Office, the Federal Bureau of Investigation, and the Library of Congress, Congressman Thaddeus J. Dulski commented as follows about General Accounting Office work:

No money is better spent than that allocated to the General Accounting Office for its extremely effective work in auditing the

books of the Government and in ascertaining that the policies and programs designed by the Congress are properly, fairly, and efficiently administered by the executive branch.

The GAO has been confronted with an increasing workload in major civilian agencies stemming from a growing economy and increasing requirements related to space, research, atomic energy, education, postal services and operations, commerce, science, transportation, power and water resources, and other significant activities of Government-wide services.

The magnitude and complexity of the operations of the Department of Defense requires that GAO place extremely heavy responsibilities upon staff.

Department of Defense View on GAO Reports

The Deputy Secretary of Defense, David Packard, issued a memorandum on January 29, 1969, to top Defense officials emphasizing the importance and usefulness of GAO reports on Defense activities. The memorandum, which was issued in view of changes in top officials in the Department in connection with the changeover to the Nixon administration, stated:

These reports have a substantial impact on congressional and public views regarding DOD activities, and merit prompt and careful DOD top management attention. They provide a valuable means of identifying problems that require corrective management action.

In commenting on GAO reports we should be objective, acknowledge problems when they exist, indicate what corrective actions are being taken, and point out judiciously any pertinent omissions or inaccuracies in the GAO findings and conclusions. Promptness in handling GAO reports is essential. Also, it is essential that promised corrective management actions be completed within reasonable periods of time.

GAO Report With Unusual Twist

In a report submitted to the Congress, entitled "Problem Areas in Implementing Amendatory Legislation Affecting Railroad Retirement Annuities" (B-114877, Nov. 29, 1968), the Comptroller General forsook the cause with which he is most commonly associated in the public mind—saving money—to illustrate one of GAO's broader interests in the affairs of Government—seeing that beneficiaries of governmental programs receive the benefits to which they are entitled.

The report highlighted GAO's findings that wives and dependent husbands of some railroad employee annuitants had not been paid their annuities, primarily because the Government's notices concerning their possible entitlement were not understood by the persons involved. These persons included some with language difficulties, some with limited education, and some with mental or physical disabilities.

Acting on GAO's findings, the Railroad Retirement Board established the entitlement of 358 such persons to annuity payments which could total at least \$657,000, and possibly as much as \$1.1 million, during their expected periods of eligibility.

The report included several recommendations to help ensure the proper implementation of future legislative enactments.

The following excerpts from comments received by the Comptroller General on the report attest to the significance of the contribution that can be made by GAO in carrying out its broader interests in a constructive and understanding manner.

From the Chairman, U.S. Civil Service Commission

I was gratified to see the special emphasis in the report on the responsibility of an agency to make sure that its customers are getting the full benefits to which the law entitles them. This is a responsible approach to Government administration.

From the Commissioner of Social Security

* * * we are taking pains to prepare and pretest informational materials designed for the disadvantaged, and we are seeking new ways for our field force to communicate more effectively, and we are reviewing all of our forms and letters to make them as simple and as unambiguous as possible.

From a Professor of Public Administration

I kept thinking of the Ombudsman concept as I read expressions of concern over the fact that persons were penalized because of their inability to comprehend notices that had been sent them.

The audit assignment which produced this report was performed by the Chicago Regional Office staff under the supervision of *Frank Kielpinski*, and under the general direction of *Philip Charam*, associate director, Civil Division.

Los Angeles Staff Commended

The director of the Community Action Agency in Phoenix recently commended the constructive work of the Los Angeles Regional Office staff who were engaged in reviewing the administration and effectiveness of his Agency's program. In a letter dated January 28, 1969, to *H. L. Krieger*, GAO regional manager in Los Angeles, the director stated:

* * * we want you to * * * know how helpful we feel the work of your staff has

been to us. We greatly appreciate the manner in which your staff went about this important assignment and their efforts to share their observations with us during the entire process. We have benefitted from their efforts and found their objective approach to reviewing our program most helpful in documenting our concerns on program improvement, which have already resulted in major changes in a number of significant program areas. This kind of outside assistance serves a valuable purpose in reinforcing efforts in areas of recognized concern on the part of the local community.

Mr. Gerald Denkers and his entire staff team are to be commended on an outstanding job of lasting value to this community for which we are deeply grateful.

***Defense Supply Management—
Its Scope and Magnitude***

The function of supply management in any organization is concerned basically with having:

- What is needed.
- When it is needed,
- Where it is needed.
- In the quantities needed.

The scope and magnitude of what is involved in the supply management job in the Department of Defense are apparent in the following summary prepared for audit planning and programming purposes by the audit group in the Defense Division of GAO responsible for audits of this function:

- \$45 billion to procure what is needed each year.
- \$95 billion of equipment in use. For example, 34,000 aircraft, 1,700 strategic missiles, and 900 ships of the fleet.
- \$17 billion spent each year to modernize, repair, and maintain items in use or in storage.
- 4 million different items of supply.

- 22 large inventory control points.
- 62 wholesale depots.

Office of Intergovernmental Relations

President Nixon has established the Office of Intergovernmental Relations which will function under the immediate supervision of the Vice President of the United States (Executive Order 11455, February 14, 1969). Its purpose is to provide a center for strengthening Federal, State, and local relations.

Among the functions of the new Office are the following:

- Serve as the clearinghouse for the prompt handling and solution of of Federal-State-local problems brought to the attention of the President or Vice President by executive and legislative officers of State and local governments.
- Identify and report to the Vice President on recurring intergovernmental problems of a Federal interdepartmental and interprogram nature.
- Explore and report to the Vice President on ways and means of strengthening the headquarters and interagency relationships of Federal field offices as they relate to intergovernmental activities.
- Maintain continuing liaison with intergovernmental units in Federal departments and agencies and with the staff of the Council for Urban Affairs, and provide the staff of the Council with information and assistance regarding issues arising in Federal-State-local relations.
- Review procedures utilized by Federal executive agencies for affording State and local officials an op-

portunity to confer and comment on Federal assistance programs and other intergovernmental issues, and propose methods of strengthening such procedures.

Former South Dakota Gov. Nils A. Boe has been appointed director of the new Office.

PPBS and Information Systems

The November 20, 1968, meeting of the Washington Chapter, National Association of Accountants, was devoted to the subject of the practical integration of PPBS with the management information system. As one of the panelists, *Keith Marvin*, associate director, Office of Policy and Special Studies, GAO, commented as follows:

* * * the heart of PPB, and its primary justification for existing, is the rational and systematic analysis of alternatives. We should not be misled by the program and financial plan displays into thinking that these are the essence of PPB. In fact, at present, most of the information required to measure and evaluate program achievements is not reflected in the program and financial plans. This may always be true since adequate information for evaluation of many programs is very complex and highly variable even among similar programs. The quantitative information which is reflected in program and financial plans is usually program type information such as number of units constructed, number of individuals processed, and so forth. Although that information is used in analyses, it must be supplemented by much more definitive information about what is actually done to each type of unit or individual.

My reason for making this point is to suggest caution about concluding the benefits to the PPB process of direct integration with the management information system on a frequent basis. This essentially financial integration may be desirable and worth doing

but much other information will still be required for the PPB analytical work.

Secretary of the Treasury Reflects on the Joint Program

In a letter to the Comptroller General dated December 20, 1968, the former Secretary of the Treasury, Henry H. Fowler, reflected on the continuing value of joint efforts to improve financial management throughout the Federal Government. He applauded the influence of the Comptroller General in giving increased priority to the constructive role of GAO in its relations with Federal agencies and characterized as a salutary development the inclusion of the Civil Service Commission in the Joint Financial Management Improvement Program. Mr. Fowler then went on to project his hopes for high quality financial reporting in the Federal Government in these words:

The great leveler about all of these things is what we so often have stated—that the job can never be considered fully done at any moment of time and that every step needs to be a building block to progress. Treasury staff devoted to serving as an operating financial center for the Government hope for nothing less than a viable financial framework throughout the entire Government that will permit cohesive development of the kind of financial reporting that is needed by the public and useful for various specialists. Much of this is implicit in what remains to be done to provide a realistic basis for carrying out the unfinished business in the remaining recommendations of the Budget Commission.

But even beyond that, the best of hopes that I can express as I take leave of this dynamic Federal environment is for the day when the highest quality of financial information will be an intrinsic part of the totality of management at every level of every operating agency.

Joint Financial Management Improvement Program Progress Report

The recently issued annual report of the Joint Financial Management Improvement Program marks the 20th anniversary of this important program and contains a section on "Highlights of 20 Years of Progress." The program is a Government-wide cooperative effort of all agencies to establish and maintain systems of financial management of maximum usefulness throughout the Federal Government. Leadership is provided by the Comptroller General of the United States, the Secretary of the Treasury, the Director of the Bureau of the Budget, and the Chairman of the Civil Service Commission. The program has become a permanent force for improving financial management in the Federal Government. The current high level of activity, evidenced by a listing of seven important current projects, represents a recognition of the continuing need for this program.

The report recognizes progress made in individual departments and agencies in the areas of organization, budgeting, accounting, cash management, central disbursing, reporting, internal and contract auditing, and staffing and training. The report is based on reports received from individual departments and agencies.

Bureau of the Census Publications on Financial Management

The Bureau of the Census has recently published a pamphlet on "Accounting"—the third to be published in its financial management systems se-

ries. The pamphlet describes the accounting system and its place in the management system of the Bureau.

The first pamphlet was on the subject "Performance Review for Operating Programs" (PROP). The PROP system began with a work measurement program which provided a basis for an incentive award program, first line supervisor's evaluation of employee's performance, and employee's retention, promotion, and reward. The need to relate the work measurement system to official cost reports and to the planning and budgeting processes resulted in the development of the PROP system.

The second pamphlet entitled "The Budget Process" outlines the Bureau's budget system from budget planning and formulation to its execution and control. The role of financial management in the Bureau of the Census is expressed in the introduction of this pamphlet as follows:

The Census Bureau financial management system has developed into its present form largely because of one idea which is held by the management of the Bureau, and which should be central to the development of any financial management system. The essence of the idea is that financial management is not a separate entity; it is only one part of total management, and must be thoroughly integrated with other parts of management. It should provide managers with an accurate financial reflection of past, present and future program and operating decisions. This concept requires a system which recognizes the roles of all levels of the organization, and which provides for appropriate communication to and from all of these levels.

The role of accounting in the management of the Bureau of the Census is indicated in the following statement from the pamphlet on "Accounting":

At the Bureau of the Census accounting data forms the nucleus of a broad management information system that is responsive, timely, and effective. The importance of accounting is recognized by top management, not just because accounting data controls official financial reporting, but because accounting reports have been integrated with project planning, production control, budgeting, reimbursable billing, inventory control and the maintenance of administrative records. Behind this integration of data is the idea that management will be most effective when it can rely on a single information system which highlights problems and which provides appropriate financial data for operating decisions.

A fourth pamphlet will be published on the subject of "Financial Management." This pamphlet will focus on management benefits associated with integration of various individual aspects of financial management covered in the first three pamphlets.

Comments on Internal Auditing Statement

The revised GAO statement of basic principles and concepts for internal auditing in Federal agencies, dated October 1, 1968, was sent by the Comptroller General to the heads of all Federal departments and agencies. A sampling of acknowledging responses:

Secretary of Defense

The revised statement of your office on basic principles and concepts for "Internal Auditing in Federal Agencies" is most welcome. It provides valuable guidance in this important management control area.

We believe our audit policies in the Department of Defense are consistent with the concepts expressed in the statement. However, we shall examine those policies and their application in the light of the statement in a continuing effort to obtain increased benefits from the internal audit function.

Secretary of Health, Education, and Welfare

The General Accounting Office statement of basic principles and concepts governing effective internal auditing systems in Federal agencies is an excellent publication.

The Department of Health, Education, and Welfare is committed to a broad, unrestricted audit approach. We expect our auditors, to the maximum extent of their competency, to contribute to the effective and efficient operation of our programs by providing constructive and protective services to our program officials at all levels and to the nonfederal organizations who receive and disburse Department funds.

Deputy Under Secretary of State for Administration

You are to be commended for the excellent work reflected in the new statement. I am sure it will help us in getting a better understanding of the function and importance of internal audit throughout the Department, and will assist in strengthening our own internal audit work.

Deputy Administrator, Agency for International Development

You have put together a cogent definition of the internal audit function and its essentiality to management.

We plan to disseminate it widely within our Agency to emphasize for executive personnel the usefulness of our internal audit system to improve management effectiveness.

Acting Director, Office of Economic Opportunity

This revised statement of principles and concepts for internal audit will provide helpful guidance to all agencies.

Administrator, General Services Administration.

To make internal audit an even more effective management tool in GSA, I have recently established it as a part of my office under the Deputy Administrator and have used the pamphlet and other means as devices to force-

fully express my personal support of the GSA audit function.

Chairman, Federal Deposit Insurance Corporation

There is little doubt that the guiding principles and concepts set forth in your October 1, 1968, publication should aid materially in the improvement of management operation and control.

Japanese Use of ADP Review Guide

The Board of Audit of the Government of Japan publishes a monthly magazine for the use of its technical employees which is called "Monthly Report." The December 1968 issue contains a reprint in Japanese of the "GAO Review Guide for Evaluating Internal Controls in Automatic Data Processing Systems." This guide was published in 1968 for use by GAO staffs in evaluating internal controls in ADP systems in Federal agencies or other organizations whose operations are reviewed, and has also been made available for use by other Federal agencies.

Training in Personnel Management

Staff members from the Seattle Regional Office who have participated in the Civil Service Commission training program on personnel management for Federal executives were very favorably impressed with the nature and quality of the program. The program provides an intensive 6 days of study for top Government managers who have broad responsibility for providing leadership and guidance to others.

The program objectives are to provide an opportunity for the Federal executive to broaden his perspective of the personnel management job and to

improve those human relation skills which are necessary to effectively manage people.

Personnel management is approached primarily as a matter of philosophy, rather than of policies, programs, and procedures. The program is intended to provide to each participant an experience in sharpening his insights into the responsibility of managing people, with emphasis on self-analysis and the interpersonal relationships of the executive with other members of the organization. Visiting lecturers from both the business and academic world are a part of the program. Instructors use case studies, films, and selected readings to present a variety of organizational situations dealing with human relations management.

Agricultural Cost Reduction Program

At a meeting of Department of Agriculture cost reduction representatives on December 16, 1968, *Victor L. Lowe*, associate director, and *Morton A. Myers*, supervisory auditor, both of the Civil Division, gave a talk on suggestions for the Department's next cost reduction progress report. The report, which was presented to the Bureau of the Budget in March 1969, included cost reduction and operations improvement accomplishments of about \$340 million for the first half of fiscal year 1969.

Based on observations made by members of the Civil Division audit team that reviewed the Department's cost reduction program, Messrs. Lowe and Myers offered advice for improving it. They stressed the need for adhering

more closely to Bureau of the Budget criteria for implementing the program as well as the need for constituent agencies of the Department to strengthen procedures used in validating cost reduction claims.

Ailments of Official Writing

In his final annual report as Secretary of Labor released in January 1969, W. Willard Wirtz had these thought-provoking comments to register on the quality of written communication in the Department of Labor:

Written communication in the Department suffers seriously from arthritis complicated by delegation. When most of what is written is prepared by someone other than the signer, the writer assumes only ersatz responsibility. He says the least that is required, burying it for protection in as much verbiage as the traffic will bear.

Most sentences are long. Three or four ideas are loaded in to increase the odds that one will be impressive and that if another is wrong it will get lost. Paragraphs are built like sandwiches, the meat in the middle. The purpose is less to say what is right than to avoid saying anything wrong.

Then somebody initials the document at the end of the day, somebody else at the end of the next * * * so that everybody can go home with the inflating illusion that an empty "in" box is the mark of an executive.

The Department's effectiveness would be doubled if its prose were cut in half, if those who initiated documents read them, and if those who signed them wrote some of them.

In none of this is the Department of Labor in any way exceptional.

Civil Division Seminar

The Civil Division conducted a 4-day seminar, January 13-16, 1969, for five Moravian College (Pennsylvania) stu-

dents and a professor of accounting. The seminar was designed both to inform prospective employees as to the responsibilities, policies, and procedures of our Office and to help implement a new academic curriculum at the school.

The new Moravian curriculum (4-1-4) consists of Fall and Spring terms of 15 weeks each. In the month of January, between these two terms, each student pursues a single course of study or special project of his own choosing. The purpose of the 4-1-4 curriculum is to reduce the dissipation of the student's energies by allowing him to concentrate in greater depth on fewer subjects at any one time, and also to make it possible for him in the January term to give his undivided attention to one project or course of study.

Each of the students attending the seminar commented very favorably concerning the program, saying that it was both interesting and rewarding as an educational experience. Considerable interest was expressed in our career opportunities, the nature of our work, and the amount of responsibility that staff members have within a relatively short period of time after coming with our Office. The students were particularly impressed with the wide variety of interesting audits made by our Office and our interest in the professional development of our staff members, as evidenced by our (1) professional and career development program, (2) policy to pay for job-related graduate courses, (3) CPA-review course, and (4) various other means of training.

7.21345



By MARGARET L. MACFARLANE
Chief, Legal Reference Services, Office of the General Counsel

Although some of the committees and subcommittees of the Senate and House of Representatives are still in the organization phase and have not announced their legislative, investigative, and oversight plans and agenda for the 91st Congress, representatives of GAO have already testified at three hearings and have participated in informal meetings with the professional staff of several committees on proposed hearings. Numerous briefing sessions have been held with the staffs of the Senate and House Appropriations Committees preliminary to the opening of hearings on the 1970 budget requests of the departments and agencies.

To acquaint new Members of the House with the assistance GAO furnishes to the Congress, the Comptroller General participated in a briefing seminar held at the beginning of the Congress. This seminar has been followed up by personal contacts by the legislative attorneys in the Office of Legislative Liaison with the new Members of the House and Senate.

Sheridan Weapon System

On March 13, 1969, the Comptroller General appeared as the leadoff wit-

ness at the Army tank program investigation begun by the Subcommittee for Special Investigations of the House Committee on Armed Services chaired by Congressman Samuel S. Stratton.

Mr. Staats detailed the findings and recommendations resulting from GAO's review of the Sheridan weapon system and the M60A1E1/E2 tank systems. He reviewed the costs resulting from the premature production and storage of the weapons before sufficient evaluation tests had been completed to determine the operational use of the system and before the deficiencies in the development of the ammunition had been eliminated.

Similarly, in connection with the E1 and E2 tank programs and the procurement of trainers, *Mr. Staats* stated that the review indicated that mass production had been undertaken before the conclusion of engineering tests proved that the system was suitable for operation and deployment. (Other GAO participants: Messrs. *Keller, Bailey, Rubin, and Thompson.*)

Water Pollution Control Program

During hearings on the Federal water pollution control program by the House

Public Works Committee, GAO was invited to outline its work in the field. *Allen R. Voss*, assistant director, Civil Division, presented a statement on March 6, 1969. He discussed the six reviews being conducted by GAO and advised the committee of the problem areas that had been disclosed. The reviews include the construction grant program, the Federal agency water pollution control program, the operation and maintenance of waste treatment plants, joint municipal-industrial and multimunicipal plants, and the followup review on compliance with the law regarding deposition of industrial waste solids into navigable waters. (Other participants: Messrs. *Densmore* and *Blair*.)

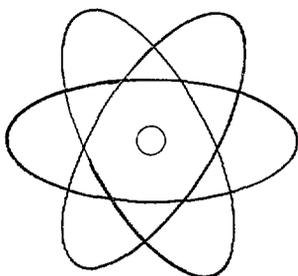
C-5A Cargo Plane

The initial hearing of the 91st Congress in which GAO participated was

the hearing held by the Subcommittee on Economy in Government of the Joint Economic Committee held on January 16, 1969. Assistant Comptroller General *Frank H. Weitzel* reported the findings of GAO concerning costs and progress payments on the C-5A cargo plane pursuant to the subcommittee's request (see *GAO Review*, Winter 1969, p. 103). (Other participants: Messrs. *Keller*, *Bailey*, *Hammond*, *Foster*, *Bohan*, *Gearino*, *Efros*, and *Thompson*.)

GAO Laws

A one-volume, loose-leaf compilation of "Legislation Relating to the Functions and Jurisdiction of the General Accounting Office" has been compiled for the use of the professional staff.



AUTOMATIC DATA PROCESSING

First ADP Equipment in Congress

In January 1969, the House Committee on Banking and Currency announced a new information service to Members of the Congress and congressional staff members as a result of the successful application of computer technology to legislative work. Up-to-the-minute information on status and summary of all bills, resolutions, and executive communications referred to this committee can be retrieved on demand through a teleprinter terminal installed in the committee office and connected with a computer in the Library of Congress.

This development is a modest beginning for the Congress in utilizing computer equipment to cope with the ever-increasing number of bills introduced each session and to answer numerous oral and written requests for the status and summary of pending legislation. According to the committee's information release, the committee's daily calendar formerly required several hours of intensive work to prepare and it was often out-of-date by the time it was sent to the printer and distributed. This operation is now accomplished in a very short time and the staff is relieved for more productive tasks.

Use of the computer will also enable the committee to print a monthly calen-

dar (as compared to the recent average of two per session) at a fraction of the current costs.

Semiannual Conference of the American Federation of Information Processing Societies

The 1968 Fall Joint Computer Conference was held December 9-11 in San Francisco. Sponsored by the American Federation of Information Processing Societies, this year's conference included a technical program consisting of seven panel discussions and the presentation of 157 papers covering a wide range of information-processing subjects. The conference also featured exhibits of equipment and services from more than 130 companies.

One or more portions of the conference were attended by *Kenneth Hunter* of OPSS and the following members of the San Francisco Regional Office: *A. M. Clavelli*, regional manager, *Kenneth Pollock*, *Frank Graves*, *Stanley George*, *Warren Nogle*, and *Steven Virbick*.

A tremendous volume of material was presented. Only a few highlights can be mentioned here. For GAO staff members interested in more detailed information, copies of the conference proceedings (they come in 2 volumes,

1,500 pages, 14 pounds) are available for reference at the following locations:

Boston Regional Office
 Philadelphia Regional Office
 San Francisco Regional Office
 Office of Policy and Special Studies,
 Washington, D.C.

The keynote address was delivered by Dr. Howard Johnson, president of the Massachusetts Institute of Technology, who asserted that the computer is perhaps the foremost technological development in the history of man. He believes that the computer provides a new dimension to man's thinking capability which enables him to make decisions that previously could not even be attempted. He warned, however, that top level management is being separated from the information-processing activity by several levels of technically oriented operations personnel and, therefore, is in danger of becoming unaware of the type of, and in some cases the meaning of, the information supplied by the computer.

Public forum on information, computers and the political process

Robert Hofstadter, Nobel Laureate Professor of Physics, Stanford University, suggested that the people be given a greater role in decisionmaking by using our computer and communications capabilities to take votes on the major policy issues—every citizen could vote from his home.

Congressman Paul H. McCloskey (Calif.) commented that the Congress was in dire need of better information and that major decisions are being made with little idea of their probable effects.

Prof. Alan F. Westin of Columbia University pointed out the serious need for protection of the individual's privacy, such as protection from uncontrolled dissemination of personal information in arrest records, credit reports, and health records.

Impact of the inquiry of the FCC into the interdependence of computers and communications

Because of the increasing interdependence between computers and communications, the computer people are now dealing day-to-day with communications regulation, technology, and services. The questions are: "What should be regulated and how much?" "What is data communication and what is data processing?" Computers are now used in both. One is regulated, the other is not.

The panel raised numerous issues, including small business, antitrust, privacy, communications breakdowns, staffing of regulatory agencies, and effectiveness of the Federal Communications Commission, thus making it clear that it will be a long time before solutions are found to the interdependence problems.

Real-time information systems and the public interest

Critical questions were examined on the challenge of real-time information systems to meet social needs, including sociopolitical policy, national and international information networks, public rates for computer communications, long-range educational planning, and the development of a public philosophy.

—The public needs a system for getting information on major social

- issues and a systematic way of getting their views to legislators.
- The citizens and legislators must learn the social information systems; they must take greater part in the design of these systems or lose political power.
- Actions are underway to establish systems for the collection and dissemination of social and scientific information nationally and internationally. Moral, management, and political questions that are yet to be answered include: (1) Who should manage the collection and dissemination activities? (2) who should decide what information may be disseminated? (3) should there be a charge for the information and, if so, what? (4) should international arrangements be on a quid pro quo basis?
- The use of real-time systems in education is moving from the research stage to the operational phase, thus requiring greater management attention.
- The need for a public philosophy for real-time information systems was suggested because the role of the public is changing from spectator to participant in our computer-services society. This transformation requires the development of a public philosophy consistent with democratic control over social information power.

Other subjects

Some of the other major subjects covered by papers included in the printed conference proceedings are:

- Experiences gained in the design, development, and use of time-sharing systems.
- Reliability, maintenance, and error recovery in third generation information systems.
- The computer field: what was promised, what we have, what we need.
- Pricing computer services—cost allocations, budgeting, flexible pricing for resource allocation, and priority pricing for time-sharing computers.
- State-of-the-art in equipment, programming, and operating system.
- Implementation of intelligent robots.
- Medical research and information systems.

Observation

It was apparent to those attending that changes are occurring at an accelerated pace on an ever-broadening front of computer-oriented operations, and these changes pinpoint several areas of concern for GAO. For example:

- How to assure that our auditing staffs have sufficient training and technical assistance to evaluate the effectiveness of the agency information systems.
- How to keep abreast of developments in information system techniques.
- How to coordinate our work to assure adequate and effective audit coverage of the significant aspects of systems and equipment management.

—How to develop and use the most advanced computer techniques in our audit and investigative work.

It has been said that, with today's technological advances, an engineer's diploma has an effective half life of about 10 years; for those in information systems and computer industries, it cannot be more than 3 or 4 years.

What is the half life of an accounting degree?

Increased Attention to State and Local Information Systems

In April 1968, an Intergovernmental Task Force on Information Systems submitted a report pointing out major impediments to attaining an effective intergovernmental flow of information. The task force comprised representatives of Federal, State, county, and city institutions and was thus able to examine problems at each level. It made a series of recommendations directed at the following objectives:

- Improving information systems within governments.
- Improving the exchange of information among governments.
- Strengthening information systems at the local level.
- Sharing systems knowledge.
- Achieving compatibility among systems.
- Improving information about assistance programs.
- Developing guidelines for action.

The task force recognized that some of the impediments to the intergovernmental flow of information "are the products of larger issues involving matters of public policy, constitutional and statutory restrictions, and governmen-

tal organization, the legitimate purposes of which are often in conflict with and override the objective of achieving an effective flow of information." The task force, however, went on to point out that "Federal, State, and local governments can act in many important ways to improve information systems even within the constraints imposed by these larger issues."

Some of the Federal actions taken and GAO involvement are discussed below.

Federal Guidelines for Action

On September 21, 1968, the Bureau of the Budget issued its Circular No. A-90 on cooperating with State and local governments to coordinate and improve information systems. The circular points out the various advantages that can be realized by coordination and cooperative action among governments in the development and use of information systems, such as, data exchange, more compatible information, more efficient and economical use of expensive data processing equipment, etc.

To achieve these advantages, it directs Federal agencies to consider applications from State and local governments for financial assistance in developing and operating information systems. The agencies also are directed to review each application in the context of other similar proposals in order to assist in taking advantage of other experiences, promote compatibility, and avoid duplicate effort. To minimize the problems of proposals involving several Federal agencies, the applicant may submit a total system proposal simultaneously to each agency. The agency

with the predominant interest will be the "lead agency" to coordinate the review and processing of the proposal.

The circular expands on some general policies as they apply to the State and local information systems, including:

- Agencies must consult with State and local governments on their systems involving a flow of information to or from State and local governments. The basic policy is stated in Circular No. A-85.
- Agencies should not place restrictions on the use of funds to the extent the heads of State and local governments cannot achieve their own central coordination of information systems activities. This basic policy is also in Circular No. A-85.
- The Federal ADP service centers operated by GSA will provide services to State and local governments on a reimbursable basis. The basic policy is in Federal Property Management Regulation A-17.

The significance of this circular is that the Federal Government has stated that its policy is to have its agencies take a greater part in State and local information systems. This greater participation is in terms of more money and some coordination and advice. It does not represent a policy of Federal leadership, however.

The significance for GAO is that a much larger portion of State and local information systems will be federally financed and thus subject to review. Circular No. A-90, however, directs no particular organizations to act and sets no criteria for evaluating performance.

GAO Participation and Reviews

GAO is now participating in and reviewing certain aspects of the Federal, State, and local coordination policies and practices:

—*Frederic H. Smith*, deputy director, Office of Policy and Special Studies, has been designated the GAO liaison representative to the Bureau of the Budget on the development of an information system for the Executive Office of the President. This system, when fully developed, will include information on State and local government programs as related to Federal programs and expenditures.

The Bureau of the Budget has completed an initial study on the information system requirements of the Executive Office of the President. The GAO concern is that the system effectively and efficiently supports the Executive Office and the Congress.

—*Edward J. Mahoney*, associate director, Office of Policy and Special Studies, is an ex-officio member of the Council of State Governments' Committee on Information Systems whose objective is to provide a vehicle for improving the channels of communication among the levels of government in information systems matters.

—*Ivo G. Binder*, assistant director, Office of Policy and Special Studies, is heading a study group made up of representatives of eight Federal agencies to develop recommendations to simplify procedures and eliminate duplication

in the reporting, accounting, and auditing requirements imposed by Federal granting agencies on grantees. Grantees developing integrated information systems will benefit significantly from such simplification.

—As part of its review of Federal programs for achieving greater standardization and compatibility in information systems and ADP equipment, the ADP group of the Office of Policy and Special Studies is evaluating the policies and programs directed at improving information systems and flow. Particular attention is being given to the effectiveness of Federal procedures for coordinating State and local information systems development to assure (1) efficient and effective development and (2) comparability of data.

—The Civil Division is conducting a review of the management by States of ADP activities under grant-in-aid programs. This work is directed primarily at the management of ADP equipment. Field work has been conducted in Pennsylvania, Kentucky, Florida, and Colorado. The grant-in-aid programs include those of the Bureau of Employment Security, the Public Health Service, and the Bureau of Public Roads.

ADP Equipment Acquisition Policies Revised

As recommended in the GAO report to the Congress entitled "Maintenance of Automatic Data Processing Equipment in the Federal Government" (B-115369, April 3, 1968), the Bureau

of the Budget has revised its Circular No. A-54 which states policies on selection and acquisition of automatic data processing equipment. The revision adds the requirement that "the feasibility and economics of performing maintenance of equipment with in-house resources" be considered in the evaluation of the alternative methods of acquiring equipment. The circular revision enumerates the factors that should be considered in the maintenance decision as brought out in the GAO report.

The General Services Administration is conducting a detailed study on the alternative methods of acquiring maintenance services, the cost considerations, and other factors involved. More specific guidelines will be issued at the conclusion of its study.

The policy was also revised to require that the leasing of equipment be reviewed when there has been a substantial change in the circumstances which were germane to the initial decision to lease rather than purchase, such as, a change in the projected useful life, changes in price, etc. Similar reviews are to be made of the method of maintaining Government-owned equipment.

New Computing Auditing Tool

On January 14, 1969, representatives of the public accounting firm of Alexander Grant & Co. of Chicago, Ill., met with the Comptroller General and top GAO officials to discuss its newly developed information analysis and retrieval system used in auditing computer-based records. The system, called Audassist, is basically a series of functionalized computer programs that can

be linked together to accomplish one or more audit objectives.

Audassist works in three phases. The first, or data conversion phase, converts the data on an organization's magnetic tape into a fixed format Audassist tape. The second, or processing phase, links the functionalized programs together in order to select data for processing or review. The third, or output phase, permits several choices of printouts. For example, there is a standard listing that displays up to 13 fields of information, a stratification listing that displays an amount or age in up to five classifications, and a choice of four different positive confirmation formats.

Alexander Grant & Co. cites the following advantages of its system:

- Auditors need not become computer experts or programmers.
- It is fast.
- Programming requirements are minimal. Only that which is necessary to get the organization's file on tape is needed.
- All processing is done on a central computer.
- Many audit and retrieval functions can be performed by the processing phase in one pass of the system's tape file.
- Auditing is more effective since the auditor controls the files and the processing.
- The system uses the computer to do clerical work normally done by the auditor, thus permitting the auditor to devote more time to judgmental and creative auditing.
- The scope of the audit is easily in-

creased due to the system's flexibility and speed.

Audassist is similar to the Haskins & Sells Auditape system in that both are information analysis and retrieval systems. Both systems require that all input data be first converted to a fixed format for later processing. The Auditape system requires the auditor to fill in blanks on preprinted specification sheets whereas Audassist requires the preparation of simplified flow charts and computer programs.

Audassist is designed for use on the IBM S/360 computer and requires tape input; however, work is currently underway at Alexander Grant & Co. to expand and add to the capabilities and flexibility of the system.

Audassist is not yet available for use by GAO auditors. Further information on it will be published in later issues of the *Review*.

1968 ADP Inventory

The General Services Administration has published the 1968 Inventory of Automatic Data Processing Equipment in the U.S. Government. The inventory is organized into tables and charts, including:

- A summary of inventory, man-year, and cost charts.
- ADP cost summary by department.
- Inventory of computers by department.
- Summary of ownership and utilization.
- Inventory of computers by manufacturer.

Copies are available in GAO divisions and offices.

Using Computer Interrogation Systems To Save Audit Time

This experience with computer interrogation techniques was submitted by the following Philadelphia Regional Office staff members based on their work at the Navy Aviation Supply Office in Philadelphia:

Victor Antelman, audit manager,
Henry J. Sobieski, auditor-in-charge,
Norman C. Berman, staff auditor,
 and
Alfred J. Michini, staff auditor.

In the past few years, the Navy Aviation Supply Office (ASO) has greatly expanded and modernized its automated data processing system which is used to make supply decisions and provide management information on about 350,000 aeronautical assemblies and spare parts. The present large-scale, multiconfiguration computer system has the capability to automatically process material requisition transactions received from Navy stock points, to initiate procurement actions, to effect redistribution of material, and to report critical supply situations to commodity managers for special action.

In addition to processing thousands of supply transactions daily, the computer system maintains summarized inventory data records on a real-time basis for every item managed by ASO. This data bank includes stock balances, demand forecasts, various technical information, and the status of specific requisitions. Under this real-time system, the summarized computer record for any element of data is updated immediately after the processing of a transaction affecting the item of supply.

A real-time situation is possible because the computer system has random access data retrieval capability; therefore, it is not necessary to accumulate a large volume of transactions before updating the summary records.

In performing a review of ASO's stock control procedures relating to the requisition and issue of material, we observed that the agency had established computer inquiry stations in each of its operating divisions, consisting of Model T-33 Remote Interrogator Devices connected to a UNIVAC 494 computer system. We learned that, by using various input codes, we could key in, or place requests for reports of information maintained in the computer data bank, on the items managed by ASO.

The Washington supervisor for the assignment was advised of this information and concurred that we should develop audit techniques involving computer interrogation, which could be used in a review of requisition and issue processing procedures. This resulted in a step forward in improving our efficiency in performing audits of ASO's operations.

Several GAO staff members familiarized themselves with the input codes and format for interrogating the computer. The first audit technique involved obtaining real-time stock status reports for a sample of 200 items. In past reviews, this audit step would have been most time consuming because it involved an accumulation of information up to 3 months old and would have necessitated considerable scheduling or duplication of agency records. This step would normally have taken over 25

man-days to complete. However, by interrogating the computer, we obtained the most current stock status information on the 200 items in less than 4 hours.

The next phase of the audit step consisted of determining the history and current status of specific requisitions related to the 200 items. For those requisitions which the computer reported as unfilled, we made comparisons with the real-time stock status reports and identified cases where stock was available to satisfy the requisition. These cases were then reviewed in detail to determine why the computer did not process the requisition.

Applying computer interrogation techniques to perform these audit steps not only saved a great deal of audit time, but also resulted in two other major benefits. First, all of the data was obtained as of a specific point in time, making it possible to compare records without being concerned about incompatibility of data due to the passage of audit time. Second, our sample during the review would have been considerably smaller and perhaps there would have been less opportunity to identify deficiencies.

By far the most significant development of our auditing technique, which has resulted from computer interrogation methods, has been the ability to enter test data into the computer to determine how the computer will react to various simulated conditions. Thus, we can readily determine if the computer programming system includes appropriate controls to prevent processing of improper supply actions.

A test utilizing this simulated situation technique required considerable skill in computer interrogation on the part of the auditor who performed the test, since it involved the temporary creation of false data in the computer data bank. The objective of the specific test was to ascertain if the computer would issue stock of an interchangeable or substitute item if there was insufficient stock of the preferred item to fill the requisition. The auditor first interrogated the computer for the quantity of material available in stock for the preferred item selected for review, and known to have a substitute item. A simulated requisition was then keyed in on the interrogator device for a quantity exceeding available stock for this item. The auditor then interrogated the computer for the status of the simulated requisition and a real-time stock status report of the item. The computer reported that the simulated requisition was not filled, and therefore indicated that there was no attempt made to issue available stock of the interchangeable or substitute item. The auditor then keyed in a cancellation of the simulated requisition and also requested a second real-time stock status report in order to assure himself that the false data had been eliminated from the computer record for the item.

In another test using the simulated situation technique, we ascertained whether the computer would process duplicate requisitions. We selected 25 requisitions that had recently been processed by the computer. As each of these requisition numbers was entered into the computer by using the inter-

rogator device, each requisition was rejected. This test showed that the computer was programmed to prevent duplicate processing of requisitions.

After the successful application of the audit techniques described above, the audit manager approved the application of these techniques to a review of implementation of decisions in the Defense standardization program and to other reviews at the audit site, as found appropriate.

The use of computer interrogation in our audits has proven to be an effective timesaver. The availability of such a system offers some thought-provoking challenges in designing new audit techniques. The use of a computer interrogator permits performing audit steps in confidence and also offers an opportunity to carry out audit procedures which ordinarily cannot be performed because of time and staff limitations.

GAO Staff Changes



Charles R. Comfort

Charles R. Comfort was designated as an assistant director of the Transportation Division, effective January 26, 1969.

In this position Mr. Comfort shares with the associate director for transportation and traffic management reviews responsibility for this category of work in all agencies of the Federal Government.

Mr. Comfort is a graduate of Kansas State University, a member of the Federal Government Accountants Association, and has been with the General Accounting Office since 1954. Before being assigned to the Transportation Division, he had wide experience in various audit and planning assignments with the Kansas City Regional Office, and he served a tour of duty with the Far East Branch.



Henry W. Connor, Jr.

Henry W. Connor, Jr., was designated as associate director of the Transportation Division, effective February 23, 1969.

In this position, Mr. Connor is responsible for transportation and traffic management reviews in all agencies of the Federal Government.

Mr. Connor is a graduate of Duquesne University and held positions with commercial accounting firms prior to joining the General Accounting Office in 1954. He has served on the staffs of the Cleveland and Philadelphia Regional Offices, the European Branch, and the Defense Division before being assigned to the Transportation Division in September 1968.

He is a CPA (Pennsylvania), and a member of the Pennsylvania Institute of CPAs.



James A. Duff

James A. Duff was designated associate director of the International Division, effective February 23, 1969.

Mr. Duff, who is currently attending the senior seminar of the Foreign Service Institute, is responsible for directing the work of the General Accounting Office relating to the international activities of the Department of Defense, the Department of State, and related activities.

Mr. Duff is a certified public accountant (District of Columbia) and a member of the American Institute of Certified Public Accountants. He attended Fond du Lac College, and holds an M.C.S. degree from Benjamin Franklin University.

Prior to joining the GAO in 1951, he was associated with a public accounting firm in the Washington area. He had overseas duty with GAO in Madrid and Paris from 1956 to 1961. Since its formation in 1963, Mr. Duff has been a member of the International Division where he has had a diversity of assignments, the most recent being the responsibility for directing the auditing and investigative work of the GAO relating to the Department of State, the international functions of the Department of Defense, and other related agencies.



John D. Heller

John D. Heller was designated as an assistant director in the Civil Division, effective January 13, 1969. In this position he will be responsible for the General Accounting Office accounting, auditing, and investigative work at the Social and Rehabilitation Service of the Department of Health, Education, and Welfare.

Mr. Heller served in the United States Navy from 1952 to 1955. He received a bachelor of science degree from King's College in 1959 and is a CPA (Virginia). In 1968 he attended the Program for Management Development at the Harvard Graduate School of Business Administration.

Since joining the General Accounting Office in 1959, Mr. Heller has had a wide variety of experience in the Civil Division. He received a Meritorious Service Emblem in 1961 and a certificate and citation by the William A. Jump Memorial Foundation in 1967.

GAO STAFF CHANGES



James J. Jodon

James J. Jodon was designated as assistant regional manager of the Dallas Regional Office, effective January 13, 1969.

Mr. Jodon received a bachelor of science degree in accounting from the University of Notre Dame. He served in the U.S. Army Air Corps from 1941 to 1945 and rose to the rank of Lieutenant Colonel. Prior to joining the General Accounting Office in 1957, he was associated with local public accounting firms and a realty and home construction company in South Bend, Ind.

Mr. Jodon received the Meritorious Service Award in 1968. He is a member of the Federal Government Accountants Association. He attended the University of Texas Executive Development Program in 1969.



James D. Martin

James D. Martin was designated as an assistant director in the Civil Division, effective January 13, 1969. In this position, he will be responsible for the GAO accounting, auditing, and investigative work at the Federal Aviation Administration, the Federal Railroad Administration, and the Office of the Secretary in the Department of Transportation.

Mr. Martin served in the U.S. Navy from 1952 to 1956. He received a bachelor of science degree in accounting from Central Missouri State College in 1958 and attended the Program for Management Development at the Harvard University Graduate School of Business Administration in 1967. He is a CPA (Virginia) and a member of the American Institute of CPAs.

Since joining the General Accounting Office in 1958, Mr. Martin has had a wide variety of experience in both the Civil Division and the European Branch, International Division. He received a Career Development Award in 1967.



Kenneth A. Pollock

Kenneth A. Pollock was designated as assistant regional manager of the San Francisco Regional Office, effective January 13, 1969.

Mr. Pollock served in the Army 1946-49 and in 1952 graduated from the University of California, Berkeley, where he was elected to membership in Beta Alpha Psi, national honorary accounting fraternity. He joined the San Francisco staff in 1955, after working for the public accounting firm of Haskins & Sells and headed the Honolulu suboffice of the San Francisco Regional Office during 1959-1961, when it was a part of the Field Operations Division.

He attended the Stanford Executive Program in 1966, and the Civil Service Commission's PPBS seminar in 1967. He is president of the San Francisco Chapter of the Federal Government Accountants Association, and is a member of the American Institute of CPAs, the California Society of CPAs, the American Accounting Association, and the Commonwealth Club of California.

Professional Activities

Office of the Comptroller General

The Comptroller General, *Elmer B. Staats*, addressed the following groups in recent months:

The Federal Executive Institute, Civil Service Commission, Charlottesville, Va., January 29.

1969 Briefing Conference on Government Contracts sponsored by the Federal Bar Association and the Bureau of National Affairs, Philadelphia, Pa., February 3.

Brookings Institution Conference for Business Executives on Federal Government Operations, February 4 and March 3, on the "Role of the General Accounting Office."

Social Security Administration Forum on Contemporary Social Issues, on February 12, on "The General Accounting Office and its Relationship to the Congress and the Executive Branch."

Mr. Staats also:

Chaired the Industry-Government seminar sponsored by the National Institute of Public Affairs on March 12.

Acted as discussion leader in the second annual British Legislators' Conference on Reform of Machinery of Government, Ditchley Park, Oxford, England, March 14-16.

Was discussion leader in the joint meeting of the American and British

Committees of the Carnegie Conference on Independence and Accountability in the Contract State, Ditchley Park, Oxford, England, March 26-28, 1969.

The Assistant Comptroller General, *Frank H. Weitzel*, addressed the Marine Corps Command and Staff College, Quantico, Va., January 9, on "Views of the General Accounting Office on Department of Defense Management."

Subsequent to his retirement as Assistant Comptroller General on January 17, 1969, Mr. Weitzel addressed the following groups:

Brookings Institution Conference for Business Executives on Federal Government Operations, February 24, on the "Role of the General Accounting Office."

Civil Service Commission Executive Seminar on Federal Program Management, February 26, on "The General Accounting Office: Assistance to the Congress in Auditing the Application and Expenditure of Public Funds and Providing Financial Management Services."

On March 13, Mr. Weitzel was the guest speaker at the luncheon meeting of the Washington Chapter of FGAA. He spoke on "Federal Financial Management from the View Point of an Alumnus." On this occasion, he was presented with the Washington Chapter's Major Contribution Award.

PROFESSIONAL ACTIVITIES

The Special Assistant to the Comptroller General, *William A. Newman, Jr.*, made a presentation on the progress of the GAO feasibility study on uniform cost accounting standards at a breakfast meeting on February 27, given by the Honorable Robert C. Moot, Assistant Secretary of Defense (Comptroller), and attended by the secretaries of the military services and their staffs.

Office of the General Counsel

Stephen P. Haycock, assistant general counsel:

Spoke on January 29 on "Subcontractor Cost and Pricing Data" under Public Law 87-653 before the Contract Management Institute, Washington, D.C.

Lectured on January 30 at the Army JAG School, Charlottesville, Va., on "GAO's Role in Government Contracting."

Spoke on February 3 at Philadelphia, Pa., on "Subcontractor Cost and Pricing Data" at a Briefing Conference on Government Contracts sponsored by Federal Bar Association and the Bureau of National Affairs.

Participated in a conference held in Denver, Colo., on "Truth in Negotiations" and "Construction Contracts" on February 24-26 sponsored by the Bureau of Reclamation.

Spoke on February 27 to the Greater Baltimore Chapter of National Contract Management Association on "Recent Decisions of the Comptroller General Affecting Defense Contracts," Fort Holabird, Md.

Melvin E. Miller, assistant general counsel:

Lectured at Defense Procurement Management Course, Fort Lee, Va., on December 10, 1968, and January 28, 1969, on "The Role of the GAO in Defense Procurement."

Participated on February 3, as a panelist on "Impact of Significant Government Contract Decisions 1967-1968" in the Briefing Conference on Government Contracts sponsored by the Federal Bar Association and the Bureau of National Affairs, Philadelphia, Pa.

Paul Shnitzer, deputy assistant general counsel:

Spoke on January 14 before the Advanced Procurement Management Course, Fort Lee, Va., on "Problems in Formal Advertising."

On January 15-17 participated as panelist at a symposium sponsored by the Federal Bar Association's Los Angeles and Santa Monica Bay Chapters on "GAO's Position on Rights to Inventions Made in Independent Research and Development Programs."

On February 28 spoke at the Department of Agriculture Graduate School on "GAO in Government Contracting."

Robert H. Rumizen, deputy assistant general counsel:

Spoke on February 13 before the Advanced Procurement Management Course, Fort Lee, Va., on "Problems in Formal Advertising."

Office of Policy and Special Studies

E. H. Morse, Jr., director, addressed XVIth International Meeting of The Institute of Management Sciences in New York City on March 27. Mr. Morse spoke on "The Planning-Programming-Budgeting System and the Congress."

Frederic H. Smith, deputy director: Participated in Civil Service Commission workshops on "Resource Control Systems" on January 22 and "Determining Program Costs" on February 11.

Civil Division

John D. Heller, assistant director, spoke at a dinner meeting of the Accounting Association at King's College in Wilkes-Barre, Pa., on March 11. His talk consisted of a general discussion of the General Accounting Office and was concluded with a question and answer period. Approximately 35 members of the Accounting Association were present at the meeting.

William D. Martin, Jr., supervisory auditor, spoke at a meeting of the Accounting Club of Geneva College in Beaver Falls, Pa., on February 27. Approximately 30 students and one professor attended the seminar. Mr. Martin's topic was the duties and responsibilities of the General Accounting Office and the career opportunities available to interested students with backgrounds in accounting.

John M. Ols, Jr., supervisory auditor, spoke at a seminar at Davis and Elkins College in Elkins, W. Va., on March 18. His talk dealt primarily with the purposes and functions of the General Accounting Office and was pitched toward the career opportunities avail-

able to graduating students with backgrounds in economics and mathematics. Local businessmen and about 35-40 students from Davis and Elkins College attended the seminar.

Defense Division

An article by *Charles M. Bailey*, director, on "The Requirement for Submission of Cost or Pricing Data" was recently published by the Machinery and Allied Products Institute and Council for Technological Advancement in their book on "The Truth in Negotiations Act—A MAPI Symposium." The article was based on an address which Mr. Bailey made in January 1968 before the Machinery and Allied Products Institute Conference in Washington, D.C., on the Truth in Negotiations Act.

Daniel Borth, associate director, spoke before the Washington Chapter, Federal Government Accountants Association, on January 9. His talk dealt with the progress being made on the study required by Public Law 90-370 of the "feasibility of applying uniform cost accounting standards to be used in all negotiated prime contract and sub-contract defense procurements of \$100,000 or more."

Also, on February 19, at a meeting of the National Association of Accountants, Dr. Borth was discussion leader on the subject "Uniform Accounting Requirements for Government Contractors."

James H. Hammond, associate director, on January 21, addressed the Huntsville Chapter of the National Contract Management Association on GAO's current approach to the review

of procurement and contracting within the Department of Defense.

Robert B. Hall, assistant director, on February 19, 1969, acted as a moderator on a workshop panel conducted by the Washington Chapter of the National Contract Management Association on the subject of "Present Procurement Statutes: Do They Reflect the Best Policies for Today's Needs?"

Field Operations Division

In December, Chicago staff members *E. C. Messinger*, *D. J. Kromenaker*, and *R. C. Kudobeck* participated in a College Career Conference sponsored by the Chicago Association of Commerce and Industry at the Sherman House.

Mr. Messinger also addressed several student groups in March. At Loyola University he spoke on "The Role of Controllorship in Performance Reviews," at Olivet Nazarene College his topic was "The Dynamics of Management Improvement in Government Operations," and at Roosevelt University he spoke on "What GAO Has to Offer You."

On January 27, *D. P. Sorando*, regional manager, Cincinnati, spoke at the monthly meeting of the Dayton Chapter of the Institute of Internal Auditors. The subject was "The General Accounting Office View of the Importance of Internal Audit in Government." Mr. Sorando also spoke at the February 27 meeting of the Accounting Club of Wright State University, Dayton, Ohio, on "The Activities of the GAO."

Arthur E. Fulmer and *Donald J. Heller*, supervisory auditors, Cincinnati, participated in the Accounting Careers Seminar conducted by the Uni-

versity of Dayton Accounting Club on February 19.

W. A. Broadus, Jr., supervisory auditor, Cincinnati, spoke at the February 25 meeting of the Accounting Honor Society of Murray State University, Murray, Ky. His subject was "The Responsibilities of GAO."

Mr. Broadus has been admitted to membership in the Ohio Society of Certified Public Accountants.

Walton H. Sheley, Jr., regional manager, Dallas, completed the President's Program in Executive Education at the Federal Executive Institute, Charlottesville, Va., on February 28. This is a new 8-week program for executives in the Federal Government.

James J. Jodon, assistant regional manager, Dallas, attended the Management Development Program sponsored by the University of Texas at Salado, Tex., during the period February 15 to March 21.

Stewart D. McElyea, regional manager, Denver, spoke to the Accounting Club, University of Denver, on February 12. His subject was "Auditing in the United States General Accounting Office." Mr. McElyea spoke also to the Colorado Society of CPAs on February 24, on the subject "Not-for-profit Accounting."

Charles H. Moore, regional manager, and *Lowell Mininger*, supervisory auditor, Detroit, on January 24 addressed a staff seminar of the Auditor General, State of Michigan. Mr. Moore spoke on "Current Audit Activities of the General Accounting Office" and Mr. Mininger spoke on "Current Reporting Challenges Within the General Accounting Office."

Frank G. Farkas, supervisory auditor, Detroit, spoke at the monthly meeting of the Western Michigan University honorary society on February 13. The subject of his talk was "Recent Changes in Audit Emphasis by the General Accounting Office."

On January 11, *Earl J. Ogolin*, audit manager, Kansas City, spoke at a meeting of the St. Louis, Mo., Chapter of the National Contract Management Association (NCMA). The subject was "Uniform Cost Accounting Standards for Defense Contracts." On February 11 and 18, Mr. Ogolin spoke on the same subject at meetings of the St. Louis Chapter of the Federal Government Accountants Association and the Twin Cities Chapter of the NCMA, St. Paul, Minn.

On March 11, *Marvin E. Gettle*, audit manager, Kansas City, spoke at a Civil Service Commission seminar in St. Louis, Mo. The subject was "The Federal Budget Process."

In January, *Richard J. Cannon*, audit manager, Los Angeles, spoke at the Procurement Executive Refresher Course conducted by Harbridge House for DOD procurement officials at the Air Force Contract Management Division, Inglewood, Calif., and at Norton Air Force Base, San Bernardino, Calif. His subject was GAO activities in the procurement area.

Edward D. Paul, auditor, Los Angeles, addressed the Accounting Club at California State College, Fullerton, in January. His topic was GAO's approach to audits.

Virginia Leach, supervisory auditor, Los Angeles, was appointed vice president of public relations for the Orange

County Chapter of the Society for the Advancement of Management.

Milo L. Wietstock, audit manager, Los Angeles, was named treasurer of the Accounting Careers Council.

Walter H. Henson, regional manager, New Orleans, was the guest speaker at the January 23 meeting of the National Association of Accountants, Pensacola, Fla., Chapter. He spoke on the performance of management-type auditors.

James H. Rogers, regional manager, Philadelphia, addressed the March meeting of the Accounting Club at Rider College on the subject "Opportunities for Accounting Majors in the Federal Government."

William P. Touey, supervisory auditor, Philadelphia, has been admitted to membership in the Pennsylvania Society of Certified Public Accountants.

Charles W. Thompson, supervisory auditor, San Francisco, recently addressed the Sacramento Chapter of FGAA on "Auditape—Its Application to GAO Reviews." The locale was particularly appropriate because the region's first Auditape application involved the Sacramento Air Material Area operations.

William N. Conrardy, regional manager, Seattle, was appointed to the Accounting and Finance Technical Advisory Committee of the Seattle Community College. The purpose of this committee is to advise the college on its accounting and finance curriculum.

Charles L. Perry, assistant regional manager, Seattle, recently participated in a panel discussion at the Portland State University. The discussion concerned the qualities looked for in appli-

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cants for accounting positions and was sponsored by the School of Business Administration.

On February 5, *James B. Deemer* and *Robert F. Raspen*, supervisory auditors, Washington, and *Edward W. States*, supervisory auditor, Norfolk, gave a slide presentation and spoke on "Functions and Responsibilities of GAO" to the Accounting Club of Virginia Commonwealth University.

Transportation Division

T. E. Sullivan, director, and *R. E. West*, assistant director, attended the meeting of the Freight Revenue Committee of the Accounting Division of Association of American Railroads, in Dallas, Tex., on March 17 and 19. They discussed numerous problems of mutual concern in the audit of accounts

and the settlement of rail carriers' claims against the Government.

E. B. Eberhart, supervisory transportation specialist, addressed and acted as a panel member at the Passenger Travel Conference conducted by the Kansas City Regional Office of the General Services Administration in February.

F. J. Shafer, deputy director, addressed the meeting and sat as a panel member at Eastern Territorial Meeting of the National Defense Transportation Association at Governor's Island, N.Y., on March 18 and 19.

Alfred Beaver, traffic manager, and *C. C. Loomis*, chief, motor audit branch, participated as guest lecturers at the Defense Advanced Traffic Management Course, U.S. Army Transportation School, Ft. Eustis, Va., on March 24.

New Staff Members

The following new professional staff members reported for work during the period December 16, 1968, through March 15, 1969.

| | | |
|---|--|--|
| Civil Division | Benkovsky, Roy K. Brown, Alfred T., Jr. Conley, Harry M., III Daniel, Norman J. Fischthal, Barry L. Fogel, Richard L. Fricke, Dennis W. Glick, Robert P. Jones, Paul L. Kramer, William C. Long, John B., II Miller, Robert J. Olson, Carl L. Rabkin, Norman J. Rider, John M. Rudy, Emory E. Whitehead, Linda W., Miss Yohey, Fred E., Jr. | College of Emporia Hiram Scott College Indiana State University Baltimore College of Commerce Tusculum College University of Pittsburgh Davis and Elkins College Youngstown State University Elizabeth City College Cannon College University of Maryland University of South Florida Columbia University University of Scranton Duquesne University Shepherd College Western Maryland College Bloomsburg State College |
| Defense Division | Canter, Robert J. Desmond, Timothy D. Moyers, George J. | Susquehanna Corp. Timothy D. Desmond, Consulting Engineers Tennessee Technological University |
| International Division— Washington | Filan, John J. | Department of Commerce |
| REGIONAL OFFICES | | |
| Boston | Fine, Arthur S. Kess, Michael E. McLucas, John D. Moffitt, William A. | Suffolk University Northeastern University Chrysler Corp. University of Rhode Island |
| Cincinnati | Carroll, Roy G. Harbold, David H. | Moorehead State University Union College |
| Dallas | Harlow, Charnel F. Hunt, Thelma L., Mrs. | Naval Audit Service Southern Methodist University |
| Detroit | Schwartz, Robert H. Van Houten, Melvin J. | Wayne State University University of Oregon |

NEW STAFF MEMBERS

| | | |
|--------------------------------------|--|---|
| Kansas City | Picow, Marshall S. Thummel, Olin S. Wieder, Edward J. Womble, John L. | University of Oklahoma Northwest Missouri State College Arkansas State University East Central State College |
| Los Angeles | Beidler, George P. Durham, Calvin J. Gunter, Joel H. Mattes, Sam | California State College at Long Beach California State College at Long Beach Nevada Southern University California State College at Los Angeles |
| New Orleans | Ducombs, Ronald C. Gunter, Donald W. Hasler, Fred A. Johnson, Orville W. | Louisiana State University Henderson State Teachers College Louisiana State University Delta State College |
| New York | Kennedy, Edward D. Law, Joseph F. | Pennsylvania State University Pennsylvania State University |
| Norfolk | Nagelhout, Donald D. Ward, Lester L. | University of South Dakota Old Dominion College |
| San Francisco | Anderson, Gordon F. Bushard, Paul J. Kokka, John H. La Croix, Raymond G. Manley, Walton M. Schley, Grant B., Jr. Thomson, Homer H. Zugar, John N. | San Francisco State College Fresno State College San Francisco State College Sacramento State College San Francisco State College Golden Gate College San Jose State College San Francisco State College |
| Seattle | Cass, John E. Cox, William C., II Hautau, Deryck O. O'Toole, Daniel A. Thomas, Charles L. | University of Oregon University of Oregon Stanford University University of Portland University of Portland |
| Washington (Falls Church) | Fernheimer, Louis | University of Maryland |

Readings of Interest

The reviews of books, articles, and other documents in this section represent the views and opinions of the individual reviewers, and their publication should not be construed as an endorsement by GAO of either the reviewers' comments or the books, articles, and other documents reviewed.

Creating Creativity and a Creative Atmosphere

By Paul B. Adams, Drake University.

This article was printed in the bulletin of the Iowa Society of Certified Public Accountants, Vol. XIV, Nos. 3 and 4 and in the Summer 1968 issue of *The Ohio CPA*.

The author concludes that in a truly creative organization, creativeness must receive impetus from two sources. First, the individual must have a desire to be creative and must make a concerted effort to cultivate his creative abilities. Second, the supervisory personnel of the firm must desire a creative organization, and must take steps to provide a creative atmosphere in order to take full advantage of the creative abilities possessed by the operative personnel. In the final analysis, it is the management attitudes that will determine the level of creativity.

On the subject of individual creativity, the author points out that recent inquiry has revealed that everyone possesses creative ability. There are four distinct categories of creative activity in which an individual may engage himself. He can innovate; i.e., generate the unusual, a new approach, or the

invention. He can synthesize. This is the ability to see and use combinations of ideas and/or factors which were previously in existence. Supervisors can be highly productive as synthesizers.

The creative individual can improve upon or extend an innovation and/or synthesis. This activity, defined as extension, is exemplified by the person who can readily see possible alternatives for improving or extending the application of accounting procedures, methods, and systems. Finally, duplication is the ability to adopt the creative successes of others. Without duplication, many potentially successful innovations, syntheses and/or extensions would go unused or used by only a few people in an organization.

As to a creative atmosphere, the author points out that research into creative organizational climates seems to point out six conditions which, if present within an organization, appear to facilitate individual creativity.

Rigidity.—Highly rigid control brought about by close supervision seems to cause a high degree of mechanical efficiency and a low degree of creativity. The supervisor should com-

municate to the staff the areas not subject to deviation and the areas where creativity will be welcomed.

Interchange.—Exchanging ideas and information through both formalized reports or memos and through informal interaction of peers, superordinates, and subordinates tends to facilitate creativeness. The attitudes and actions of superordinates govern the quality and quantity of information passed among the staff.

Diversion.—Creativity is a mental process, and there must be sufficient time to think. Pressure for accomplishment can be an incentive for creativeness but only if the individual has adequate time to abstract from his situation and generate ideas designed to improve output.

Tolerance.—The author suggests that it is imperative that members of an organization be able to generate diverse ideas if the total organization is to be highly creative and dynamic.

Evaluation.—Rejection of ideas based on convention is an effective method of discouraging creativeness. Wholesale rejection of ideas leads to conditioned thinking. Every effort must be made to evaluate on merit and not on individual preference.

Reinforcement.—The need for rewarding and reinforcing. The firm must reward an “idea man” by increases in status and salary if incentives for creativity are to be meaningful.

This summarization of Mr. Adams’ excellent article should, the reviewer believes, be of interest to our staff members, supervisory personnel and to managers and directors since it does

outline the creative elements that the reviewer believes should and do exist in professional organizations such as the GAO. Of particular interest are the findings that creativity encompasses much more than innovation and that the level of creativity is a direct result of management attitudes.

Joseph Eder,
REGIONAL MANAGER,
BOSTON.

Corporate Excellence Through Grid Organization Development: A Systems Approach

By Robert R. Blake and Jane S. Mouton; Gulf Publishing Co., Houston, Tex., 1968, \$10.95.

This book focuses on how to systematically increase productivity and organizational effectiveness through organizational development. The authors suggest that organizational development be brought about in six stages—the first three relate to the removal of communication barriers and the last three concern the formulation of a planning model and the development of planning techniques utilizing a systems approach.

The six phases of organizational development advanced by the authors are (1) learning theories of behavior and developing behavioral models, (2) teamwork development, (3) intergroup development, (4) developing an ideal planning model, (5) planning and implementation, and (6) systematic critique. A fundamental aspect of the suggested systems approach to organizational development in both the communication and planning areas

concerns establishing a model of what "should be" and comparing the model to what "is." GAO staff members are quite familiar with this problem identification and problem solving approach. The term we commonly give to a model when reviewing management performance is "criteria." Criteria then serves as our model of what "should be."

Those of us who have had the opportunity to take the GAO advanced training course are familiar with the three conceptual elements of a system—purpose, power structure, and process. Most behavioral scientists orientate their research to the power structure. Blake and Mouton have made some provision for the consideration of organizational purposes, but for the most part the purposes considered are limited to operational rather than strategic levels. They have assumed, as most behavioral scientists seem to, that the purposes of the organization have already been defined at the strategic level. While such an assumption may be proper for a profit enterprise, it certainly would be incorrect to make such an assumption for a nonprofit or governmental service enterprise. I consider this overemphasis on the power structure to be the only inconsistency, if in fact one exists, between the systems training concepts advocated by the GAO and the grid organizational development concepts advocated by Blake and Mouton.

Interestingly enough, a student of management theory who has but little time (and don't we all) to keep up with his professional reading, could limit his efforts to but 17 pages—the first and

last chapters of this book. The first chapter, consisting of some 10 pages, sets the organizational development model. The last chapter, consisting of but seven pages, delineates the theories that underlie grid organizational development. For those who might have the opportunity to take more than the few minutes required for these two chapters, I would suggest that they continue with chapter 2 concerning the behavioral science theories of achieving production through people.

Those staff members who have done some extensive reading on humanistic theory will find the authors have related organizational development to the behavioral science formulations of other authors, such as Chris Argyris (Interpersonal Competence and Organizational Effectiveness), Douglas McGregor (The Human Side of Enterprise), Rensis Likert (The Human Organization), and Frederick Herzberg (Work and the Nature of Man). Having studied these and other similar texts, I am of the opinion that the systems approach, as advocated by Blake and Mouton, is considerably more appealing to the results-oriented individual than that promulgated by many other behavioral scientists.

I concur with the authors' prognostication that the next step of development will be in a shift away from business cultures which utilize their human resources with less than full effectiveness toward an organizational life where maximum synergistic results (a condition where the total is greater than the sum of its independent parts) can be achieved through "competent, re-

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sourceful, committed men and unlimited technological possibilities." The final conclusion of the authors is that "such a situation might well bring about an explosive leap forward. Then what appears to be 'advanced management' today will be seen a decade from now as merely a base on which it was

possible to build further dramatic progress in development."

I recommend this book to all students of management theory and to all results-oriented managers.

William N. Conrardy,
MANAGER,
SEATTLE REGION.



In the Fall 1968 edition of the *GAO Review*, John W. Gardner, in "How To Prevent Organizational Dry Rot," made a comment which, in my opinion, no longer applies with respect to the Federal Government. Regarding recruiting and establishment of career development programs Mr. Gardner stated, "* * * local, state and federal government agencies are particularly deficient, and have been so for many years. Their provisions for the recruitment and development of talent are seriously behind the times."

Mr. Gardner's article originally appeared in Harper's Magazine for October 1965. What may have been so in 1965 no longer holds in 1969.

Recently, recruiting by Federal agencies has improved significantly. This has resulted largely from the efforts of the Civil Service Commission with such programs as Federal Career Day, Federal Career Week, College-Federal Agency Council, the publication "Federal Career Directory," and by offering formal training courses for Federal recruiters. Agency recruiting efforts have also improved as a result of direct hire authority given them by the CSC. To-

day, agencies themselves have become more aggressive and imaginative in their recruiting efforts. An excellent example is our own GAO which in recent years has broadened the academic disciplines from which we recruit and which is making greater efforts to hire very competent and highly motivated individuals.

As far as development programs are concerned, GAO may be ahead of other Government agencies. Formal professional development programs and the stimulus to professional and personal development may not be widespread as yet but numerous agencies are participating in the costs of additional training and development for their employees. Here again the CSC has taken the initiative by establishing Regional Training Centers throughout the country which encourage the local Federal agencies to participate by sending the personnel to the courses at a nominal fee. The courses are numerous and far ranging and in my experience are of high quality.

Good progress has been made in recent years but it should be considered as only the beginning. We must never

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be satisfied or complacent about recruiting and developing personnel. Greater strides must still be taken if we are to completely disprove Mr. Gardner's comment. That we have made an ener-

getic start cannot be questioned. The objective should be to continue.

Robert Barbieri,
SUPERVISORY AUDITOR,
NEW YORK REGION.

ANNUAL AWARDS FOR ARTICLES PUBLISHED IN THE GAO REVIEW

Cash awards are available each year for the best articles written by GAO staff members and published originally in the *GAO Review*. Each award is known as the GAO Award for Significant Contribution to Financial Management Literature and is presented during the GAO awards program held annually in June in Washington.

One award of \$250 is available to contributing staff members 31 years of age or under at the date of publication. Another award of \$250 is available to staff members over 31 years of age at that date.

Staff members through grade GS-15

at the time of publication are eligible for these awards.

The awards are based on recommendations of a panel of judges designated by the Comptroller General. The judges will evaluate articles from the standpoint of the excellence of their overall contribution to the knowledge and professional development of the GAO staff, with particular concern for:

Originality of concepts.

Quality and effectiveness of written expression.

Evidence of individual research performed.

Relevancy to GAO operations and performance.

STATEMENT OF EDITORIAL POLICIES

1. This publication is prepared for use by the professional staff members of the General Accounting Office.
2. Except where otherwise indicated, the articles and other submissions generally express the views of the authors, and they do not necessarily reflect an official position of the General Accounting Office.
3. Articles, technical memorandums, and other information may be submitted for publication by any professional staff member. Submissions may be made directly to liaison staff members who are responsible for representing their offices in obtaining and screening contributions to this publication.
4. Articles submitted for publication should be typed (double-spaced) and range in length between five and 14 pages. The subject matter of articles appropriate for publication is not restricted but should be determined on the basis of presumed interest to GAO professional staff members. Articles may be submitted on subjects that are highly technical in nature or on subjects of a more general nature.

THE GAO REVIEW

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| Far East Branch..... | <i>Clifford I. Gould</i> |
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